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Accordion 5
Item 14-51

Findings and Recommendations

Final Report of the Greater Sage-grouse Range-wide Issues Forum

Presented to the

Western Association of Fish & Wildlife Agencies

May 2006

U.S. Institute for **Environmental Conflict Resolution**
Morris K. Udall Foundation

APPENDIX C

FINDINGS AND RECOMMENDATIONS
Final Report of the
Greater Sage-grouse Range-wide Issues Forum

Preface

The Greater Sage-grouse Range-wide Issues Forum (Forum), sponsored by the Western Association of Fish and Wildlife Agencies,[1] is one of several important processes contributing to development of the *Greater Sage-grouse Comprehensive Conservation Strategy*[2]. The *Final Forum Report* presents the findings and recommendations from the collaborative work of this 35-member working group.

Significant cooperative conservation planning began in July 1995 with the signing of the WAFWA Memorandum of Understanding (MOU), designed to sustain and enhance the distribution and abundance of greater sage-grouse through responsible, collaborative management programs. Cooperative conservation was further confirmed through the MOU of August 2000, when the U.S. Department of Agriculture (Forest Service) and the U.S. Department of the Interior (Bureau of Land Management and the U. S. Fish and Wildlife Service) joined with WAFWA to conserve and manage sagebrush ecosystems to benefit greater sage-grouse and other sagebrush dependent species.

In August 2002, the U.S. Fish & Wildlife Service contracted with WAFWA to prepare a scientific assessment of greater sage-grouse and their related sagebrush habitat, followed by development of a comprehensive conservation strategy. Accordingly, the *Conservation assessment of greater sage-grouse and sagebrush habitats*[3] was completed in 2004. In 2005, WAFWA began work on a conservation strategy.

WAFWA envisioned the use of a group of diverse stakeholders to contribute towards development of the comprehensive conservation strategy. The Forum, sponsored by WAFWA, was convened in November 2005 and managed through a facilitated process. The goal of the Forum was to contribute to the development of a range-wide conservation strategy that would *maintain or, where possible, increase the present distribution and abundance of greater sage-grouse and sagebrush habitat.* The Final Forum Report describes the integration and coordination of management approaches to range-wide issues that can provide a reference for Local Working Groups (LWG), state/provincial, tribal, and agency conservation planning processes. Forum participants worked to develop a flexible and dynamic strategy to guide planning processes into the future, acknowledging LWG, state/provincial, tribal, and agency plans and their importance to the implementation phase of greater sage-grouse conservation.

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[1] WAFWA is the association of fish and wildlife agency directors from the western United States and Canada. WAFWA contracted with the U.S. Fish & Wildlife Service to prepare and deliver, with assistance from the Framework Team, the *Greater-Sage Grouse Comprehensive Conservation Strategy* to conserve greater sage-grouse and sagebrush habitat. WAFWA was the primary funding source for the Forum.

[2] The *Comprehensive Strategy* will describe approaches to funding, communication, monitoring, implementation, research and conservation for the greater sage-grouse at the range-wide scale.

[3] Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming, USA.

The Forum process identified the natural complexity of the sagebrush steppe ecosystem and the complicating factors associated with past and current land use. Participants recognized that, without increased conservation efforts, the increasing human population and uses in greater sage-grouse landscapes would continue to compromise greater sage-grouse abundance and distribution. Forum participants also agreed there are immense challenges involved in fostering successful cooperative conservation. A multitude of resources - social, economic, and scientific/environmental - will be needed to achieve reconciliation of the range of issues associated with balancing human needs with values of the natural system.

The approach to conservation of greater sage-grouse within a collaborative and comprehensive vision is an encouraging step, but much work remains to be done because of the human and ecological uncertainties involved. The history and success of managing sagebrush ecosystems has, at best, been mixed. Federal, state and provincial land and resource management agencies have often failed to sufficiently and meaningfully involve citizens in an integrated planning process. Even in those instances when citizen involvement has occurred, there is often insufficient resolve by the agencies to bring about any real change that benefits greater sage-grouse and sagebrush habitat. A cooperative conservation approach will require individual and collective integrity, and dedication of time, funds, shared responsibilities, and continued learning using adaptive management.

The Forum challenges all readers to become engaged in the process at the appropriate scale to accomplish the shared vision to *maintain or, where possible, increase the present distribution and abundance of greater sage-grouse and sagebrush habitat.*

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Introduction

Background

The Greater Sage-grouse Range-wide Issues Forum (Forum) was convened in November 2005 to facilitate the collaborative development of approaches to address issues, needs, opportunities, and partnerships related to the conservation of greater sage-grouse and sagebrush habitats at the range-wide scale. The Forum was sponsored by the Western Association of Fish and Wildlife Agencies (WAFWA[4]).

The Forum deliberations addressed greater sage-grouse and related sagebrush habitat issues at the range-wide scale (which, by definition for this process, also includes sub-population, population, and eco-regional scales) that cannot be adequately addressed at local, state, and provincial scales. The range-wide component will be integrated with approaches already developed at the local working group, state/province, tribal, and agency levels to form the *Greater Sage-grouse Conservation Sub-strategy.* This component, along with six other sub-strategies, will form *the Greater Sage-grouse Comprehensive Conservation Strategy (Comprehensive Strategy).* The Forum's work at the range-wide scale will be integrated with other sub-strategy components (Figure 1) by the National Greater Sage-grouse Conservation Planning Framework Team[5] (Framework Team), enlisted by WAFWA to coordinate preparation of the *Comprehensive Strategy*.

In an effort to ensure the Forum was neutral and impartial, and to facilitate effective interaction among a diverse representation of stakeholder interests, WAFWA asked the U.S. Institute for Environmental Conflict Resolution (U.S. Institute) to organize and convene the Forum. The U.S. Institute is an independent federal agency that assists parties in resolving environmental, natural resource, and public lands conflicts through assisted negotiation and mediation. A Forum Facilitation Team – comprised of the U.S. Institute's Larry Fisher and Susan Hayman, of North Country Resources, Inc. – worked to design, facilitate, and document the Forum process.

Thirty-five people participated in the Forum process (Appendix 1). The Facilitation Team selected participants to represent the broad array of perspectives related to greater sage-grouse conservation. Forum participants were chosen based on their experience, background, and knowledge of greater sage-grouse conservation issues, their interest and willingness to participate in this intense process, and their ability to work collaboratively and constructively on development of strategies to address range-wide issues. Participants were not viewed as formal representatives of individual organizations or constituencies, and they were not expected to be official signatories to the Forum's report or recommendations. It was understood, however, that participants would provide ongoing communication and exchange with people or groups that share similar interests throughout the Forum process.

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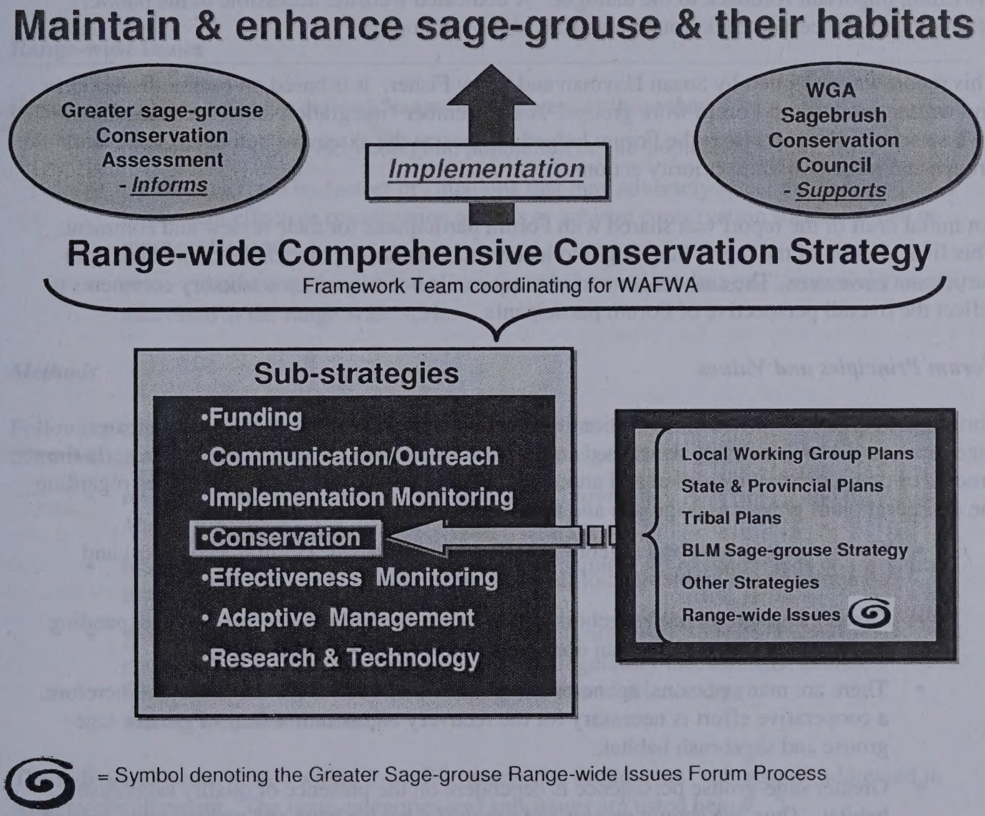
[4] WAFWA is the association of fish and wildlife agency directors from the western United States and Canada. Its role in this process is that of a contractor with the U.S. Fish & Wildlife Service to prepare and deliver, with assistance from the Framework Team, the *Greater-Sage Grouse Comprehensive Strategy* to conserve Greater sage-grouse and sagebrush habitat. WAFWA was the primary funding source for the Forum

[5] The Framework Team is comprised of four state wildlife agency representatives, two WAFWA staff, and a representative from each of the following federal agencies: Bureau of Land Management, U.S.D.A. Forest Service, and U.S. Fish and Wildlife Service. Their role is to prepare and deliver, in coordination with WAFWA, a comprehensive strategy to conserve greater sage-grouse and sagebrush habitat. They are the primary technical experts responsible for developing the *Greater Sage-grouse Comprehensive Conservation Strategy*.

Figure 1: Comprehensive Conservation Strategy Flow-chart


Maintain & enhance sage-grouse & their habitats
Greater sage-grouse Conservation Assessment - Informs
Implementation
WGA Sagebrush Conservation Council - Supports
Range-wide Comprehensive Conservation Strategy
Framework Team coordinating for WAFWA
Sub-strategies
•Funding
•Communication/Outreach
•Implementation Monitoring
•Conservation
•Effectiveness Monitoring
• Adaptive Management
•Research & Technology
Local Working Group Plans
State & Provincial Plans
Tribal Plans
BLM Sage-grouse Strategy
Other Strategies
Range-wide Issues
= Symbol denoting the Greater Sage-grouse Range-wide Issues Forum Process

Over the five months of deliberations, three formal workshops were held:

- Workshop #1: Salt Lake City, UT, November 29 – December 1, 2005
- Workshop #2: Boise, ID, January 30 – February 1, 2006
- Workshop #3: Phoenix, AZ, February 27 – March 1, 2006

In addition to these three face-to-face workshops, participants continued to work in between the meetings individually and via conference calls and e-mail exchanges. Periodic electronic questionnaires administered by the Facilitation Team helped augment the discussion by providing important feedback to the dialogue. A dedicated website, accessible to the public, offered regular access to background materials about the Forum.

This report was compiled by Susan Hayman and Larry Fisher. It is based on Forum discussions and written products of Forum work groups. A six-member "integration team," composed of a diverse set of volunteers from the Forum helped synthesize the extensive output from the work groups and identify highest priority actions.

An initial draft of the report was shared with Forum participants for their review and comment. This final version of the report has sought to incorporate, as far as practicable, comments from participant reviewers. The authors have tried to reconcile occasional contradictory comments to reflect the overall perspective of Forum participants.

Forum Principles and Values

Forum participants identified conservation issues significant throughout the range of greater sage-grouse, and cooperatively developed conservation strategies to address these issues. In the process of doing so, they identified and articulated a set of shared principles and values regarding the conservation of greater sage-grouse and their habitat:

- Greater sage-grouse and sagebrush habitats have intrinsic cultural, ecological and symbolic values emblematic of the Western lifestyle and environment.
- Greater sage-grouse and sagebrush habitats are currently in decline due to expanding human population and human uses in greater sage-grouse landscapes.
- There are many persons, agencies and policies responsible for the decline. Therefore, a cooperative effort is necessary for the recovery and sustainability of greater sage-grouse and sagebrush habitat.
- Greater sage-grouse persistence is dependent on the presence of quality sagebrush habitat. Thus, we should protect and enhance what we have and recover what we can.
- Principles of adaptive management should be used to document actions, evaluate impacts/benefits, adjust practices, and integrate human needs and values to achieve success.
- The best available science (with a commitment to continually add to the science base) should be used to plan and implement conservation actions and evaluate the effects of conservation actions.

- Successful conservation of greater sage-grouse and sagebrush habitat will require identification of responsibilities for implementing the *Comprehensive Strategy*, and establishment of measures of accountability to insure that conservation goals are achieved.

Forum participants recognized the value of existing federal, tribal, state/provincial and local plans and conservation agreements, and their importance to cooperative conservation of greater sage-grouse and their habitat. They also agreed on the importance of informing the public about ways to conserve and enhance greater sage-grouse populations and sagebrush habitats.

Range-wide Issues

Forum participants generally defined "range-wide issues" as those that:

- exist at the range-wide, ecoregion, population or sub-population scale;
- are characterized by factors or situations that may adversely affect the ability to implement effective conservation actions or achieve conservation success at one or more scales, and;
- either cannot be addressed at the state/provincial or local scale, or are most efficiently addressed at the range-wide scale.

Methods

Following this general agreement on a definition, participants identified the issues critical to the conservation and enhancement of populations of greater sage-grouse and their habitats by:

- reviewing the issues summarized from the *Conservation Assessment* and the *12-Month Finding*[6];
- brainstorming additions or deletions from this initial set of range-wide conservation issues (Workshop Summary #1), and
- grouping the remaining issues into five broad categories: Integration and coordination across range and jurisdictions, regulatory mechanisms, habitat restoration, habitat conservation and land use, and science/data management/information.

The individual issues nested within these five categories became the "sub-issues" addressed in strategy development. The issue categories and sub-issues are listed below.

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[6] 12-Month Finding for Petitions to List the Greater sage-grouse; Federal Register / Vol. 70 / No. 8 / Wednesday, January 12, 2005

Defining Range-wide Issues

Once the issue categories (and the sub-issues within them) were identified, work groups for each issue category were established. Forum participants self-selected the work group in which they wished to participate. In several instances, people participated in more than one work group. Work groups were provided breakout time at each workshop. In addition, most work group participants continued to work individually and through e-mail or conference call conversations between workshops.

Forum work groups developed problem statements for each subissue that helped define the scope of the issue for strategy development. Range-wide strategies developed by work groups included, to the extent possible, desired conditions, goals, objectives, implementation, and monitoring information. Preliminary draft strategies were vetted with all Forum participants and refined as appropriate within the allotted time. A summary of the issues addressed by the work groups is presented below. Appendix 2 (a separate document to this Report) contains the complete text of the Forum Strategies presented to the Framework Team for further refinement and integration into the *Comprehensive Strategy.*

Habitat Conservation and Land Use: Greater sage-grouse currently occupy approximately 56 percent of the historically occupied range of the species[7]. The loss of 44 percent of greater sage-grouse range and the fragmentation/habitat degradation of remaining range poses great challenges for the perpetuation of the species.

Sub-issues:

- Conservation and protection of habitats.
- Invasive plant species.
- Livestock grazing.
- Agricultural lands.
- Fences.
- Surface hydrology.
- Energy corridors.
- Roads and railroads.
- Tall structures.
- Urban/exurban development.
- Dispersed recreation.
- Non-renewable energy.

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[7] Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming, USA.

Habitat Restoration: Critical elements of the effort to ensure continued existence of greater sage-grouse are the conservation of important habitat and the technical capability of reliably restoring degraded habitat. This capability includes not only ecologically sound treatment techniques and management practices, but also the production and availability of genetically appropriate plant materials.

Sub-issues:

- Conifer encroachment.
- Range-wide habitat restoration assessment and planning.
- Native seed availability.
- Planting expertise.
- Fire.

Science, Data Management, and Information: The *Conservation Assessment* and the *12-Month Finding* identified numerous instances where lack of definitions, data and metrics pose great difficulties for identifying greater sage-grouse needs and ways to recover their habitat and populations. In addition to the lack of data and information, there is currently no mechanism for efficiently housing and distributing information among the many agencies, organizations, and individuals involved in greater sage-grouse conservation.

Sub-issues:

- Standardized vegetation and other data layer base map and access system.
- Definition of success for greater sage-grouse conservation.
- Evaluating social and economic effects of human activities on greater sage-grouse and habitat persistence.
- Ability to predict population outcomes/habitat as a result of vegetation change.
- Range-wide research and monitoring collaboration and coordination.

Regulatory Mechanisms: It may be difficult to effectively implement conservation actions for greater sage-grouse due to inconsistent and inadequate application of regulations within and among agencies. Emerging science also suggests that some regulations result in unforeseen or unwanted impacts on greater sage-grouse and their habitat (e.g., regulations that address specific habitat desired conditions or methods to achieve them). Incentive-based conservation solutions are limited.

Sub-issues:

- Inconsistent and inadequate application of existing regulations and policies.
- Adequacy of regulations.

Integration and Coordination across Range and Jurisdictions: Lack of coordination of policies, programs and regulations to address issues related to greater sage-grouse within and among agencies at national, regional, state, and local levels has adversely affected greater sage-grouse conservation. Current approaches do not facilitate coordinated planning, and implementation and evaluation of plans that integrate the issues and address cumulative effects. There are currently insufficient opportunities to share scientific findings, management information, and lessons learned among local working groups and other greater sage-grouse stakeholders. This condition could impede implementation of actions that benefit greater sage-grouse.

Sub-issues:

- Current approaches.
- Insufficient opportunities to share scientific and management information and learning among local working groups and other sage-grouse stakeholders.
- Inconsistency in policy and coordination across jurisdictional boundaries.

Critical Needs

Methods

A six-member "Integration Team" comprised of a diverse set of volunteers from the Forum helped synthesize the extensive output from the working groups and identify highest priority actions.

The first task of the Integration Team was to refine decision criteria synthesized from the Phoenix workshop, and apply these to the goals synthesized from the Forum Strategies (Appendices 3 and 4). Based on discussion, the Integration Team concluded it was best to rate the goals spatially according to geography; i.e. one set of ratings for the western portion of the range, and one set of ratings for the eastern portion of the range[8] (as mapped in the *12-Month Finding*, pg. 2250, Federal Register, Jan 12, 2005).

They then applied a three-point scale (with '3' being high) reflecting the Forum's key principles.

- Protect what we have (3)
- Retain what we're losing (2)
- Restore what has been lost (1)

(For goals that stated both 'retain' and 'restore', they assumed the highest and best use.)

Finally, they applied a three-point 'intuitive' cost-effectiveness rating:

- High (3)
- Medium (2)
- Low (1)

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[8] Appendix 4 contains the synthesized, rated goals and an explanation of the rating process. It is important to note that the purpose of the rating by the Integration Team was simply to identify those goals that most Forum participants felt an immediate need to address. The rating was not intended to create an absolute ranking of the goals.

The Integration Team noted that geography would have a critical role in ultimately integrating range-wide strategies with strategies at the state and local levels. While they agreed that a set of criteria used to identify geographic priorities would be useful, they were uncomfortable developing the criteria to be used in making these choices. A Forum recommendation to the Framework Team is to consider convening an expert panel to develop these criteria and/or identify priority locations to implement conservation actions that benefit greater sage-grouse and its habitat.

Defining Critical Needs

Each of the goals and subsequent strategies identified by the Forum participants make an important contribution to *maintain or, where possible, increase the present distribution and abundance of greater sage-grouse and sagebrush habitat* across the range. Forum participants realized, however, that some goals were essential to address impending needs for greater sage-grouse and its habitat. The Integration Team identified seven goals as high priority/critical needs for the immediate investment of resources range-wide:

- Create long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate greater sage-grouse conservation actions throughout the range.
- Locate and protect important and/or intact greater sage-grouse habitats ("save the best")
- Identify locations of priority areas on which to focus conservation actions to maintain the function of sagebrush ecosystems ("retain what we're losing").
- Institutionalize and expand long term existing natural resource information portals (e.g., SAGEMAP) for greater sage-grouse and sagebrush ecosystems to provide easy and dependable access to useful information. The information should include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, greater sage-grouse information, surface geology and hydrology data, guidelines, techniques, best management practices, and other critical data and information for greater sage-grouse and sagebrush conservation through an accessible central repository.
- Develop and implement a coordinated program of research and monitoring projects integrated within the context of the landscape. Monitoring efforts should address the effects of human activities and natural events on greater sage-grouse and sagebrush habitat. Monitoring results can then provide the foundation for adaptive management.
- Develop and implement grazing systems and management practices that maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community to address long-term needs of greater sage-grouse and other sagebrush associated species.
- Create a mechanism for sharing information among LWGs and all levels of those involved in sage-grouse conservation to enable measurement of cumulative effects on sage-grouse habitats.

Additional goals were identified as regionally important for the western and eastern regions of the range, respectively.

West

- Contain and suppress wildfires in important greater sage-grouse habitats.
- Manage dispersed recreational activities to avoid, reduce and, where possible, eliminate displacement of greater sage-grouse or negative impacts to greater sage-grouse habitat.
- Identify known locations, and areas of future risk, for the top priority invasive plant species.

East

- Provide for non-renewable resource development and utilization with the assurance of 'no net loss' of sagebrush habitat or greater sage-grouse populations at appropriate spatial and temporal scales.
- Develop and use consistent criteria and management guidelines to locate/site, energy corridors, and operate and maintain new and existing facilities within energy corridors in a manner that minimizes impacts to greater sage-grouse and sagebrush habitat.
- Develop and implement technologies and practices that offset, reduce and/or minimize disturbance to greater sage-grouse and their habitat associated with non-renewable resource recovery activities.
- Develop and implement best management practices and appropriate mitigation measures that can be implemented for siting and operation and maintenance activities associated with energy corridors.

Forum participants strongly recommend the *Comprehensive Strategy* emphasize these range-wide and regional goals in the short term, and integrate accomplishment of the remaining identified goals according to their identified relative importance as additional resources become available. A number of the identified goals may also be more appropriately included in other sub-strategies (e.g., monitoring, funding, communication, science) as they are integrated into the *Comprehensive Strategy*.

Other Perspectives / Remaining Concerns

Despite the variety of perspectives and interests represented by Forum participants, there was considerable agreement about core values, preliminary strategies and critical, priority actions.

Nevertheless, given the Forum's broad, range-wide mandate and somewhat limited time frame, there remain differing perspectives and concerns that deserve acknowledgement and, in some cases, further follow up action. Most prominent among these concerns are those related to livestock grazing and energy development, as well as concerns regarding implementation of regulatory mechanisms. The Facilitation Team recommends that WAFWA undertakes steps to continue discussions on these concerns as the Framework Team develops the *Comprehensive Strategy.*

The following summarizes the unresolved issues either noted by Forum participants during the Forum process, or highlighted in comments received on the initial draft of this Final Report:

Forum Principles and Values

Some expressed concern- over the emphasis on adaptive management in the Forum strategies, including its identification as a Forum principle and value. This concern is based on the perceived lack of demonstrated success of adaptive management, and uncertainty about agencies' commitment to follow through with the monitoring and associated response that would be required under a truly adaptive management approach.

Critical Needs

Although the concurrence among the Integration Team in synthesizing and prioritizing critical issues reflected a broad diversity of perspectives, some Forum participants disagreed with their conclusions. In particular, some participants felt that strategies related to energy development should be a range-wide priority, not just a priority for the eastern region of the range. Other participants felt that expansion of pinyon-pine/juniper woodlands into historic sagebrush habitats should be a priority in the western region of the range.

Some participants expressed concern that goals related to regulatory mechanisms did not surface as critical needs. Some participants also felt that regulatory mechanisms were more of a tool than goals unto themselves.

Since not all Forum participants were involved in the final determination of the critical, high priority needs, there was no opportunity to achieve full support for these priorities.

Livestock-Grazing

The management of livestock grazing on greater sage-grouse habitat areas was a concern for several Forum participants. Some felt that the strategies reflected a presumption that grazing would occur, rather than defining where, when and how grazing could be compatible with the habitat needs of greater sage-grouse.

It was noted that Forum strategies could have included a voluntary federal grazing permit buy-out program, providing livestock grazing permittees the opportunity to sell their federal grazing permits rather than incur the socio-economic impacts of agency actions to conserve sage-grouse.

Non-Renewable Resources

Some participants felt the Forum strategies did not adequately address the increasing intensity and extent of impacts to greater sage-grouse and their habitats due to exploration and development of non-renewable resources. Others felt that the 'no net loss' principle should not apply solely to non-renewable energy development; it should be applied equally to all authorized resource uses range-wide. Further, some participants requested that the strategies include language that a *de-minimus* level of development or impact to habitat would be allowed to occur without application of 'no net-loss'.

Disappointment was expressed that the non-renewable resources strategies failed to identify the creation of sagebrush reserves as a means to mitigate the negative impacts of energy development on sage-grouse populations.

Sage-grouse and other sagebrush obligate species
A concern was noted about the lack of strategies for identifying distinct population segments of greater sage-grouse to help inform better management decisions for sage-grouse. It was also suggested that the public interest would have been better served had the Forum addressed other sagebrush obligate/dependent species rather than the greater sage-grouse alone, especially in terms of additional research, monitoring and protections.

Other Plans
A concern was raised about existing federal, state/provincial and local plans and conservation agreements, and the need was reiterated to analyze the accomplishments of these plans under the U.S. Fish and Wildlife Agencies Policy for Evaluation of Conservation Efforts, rather than allowing groups to self-report their progress.

Appendix 2 – General
Several participants were unsatisfied with portions of Appendix 2. Some would like to have had more time to further clarify or consolidate goals and objectives, and articulate the strategies in a more compelling way. Some wanted additional time to make further progress in identifying implementation actions, critical players, monitoring and projected costs.

While participants understood and accepted the time constraints that prevented additional work on Appendix 2, those with this particular concern suggested that strategies listed in Appendix 2 would benefit from additional fine-tuning as the Framework Team integrates them into the *Comprehensive Strategy.*

Implementation/Next Steps

Forum participants identified three essential resources needed to take this work forward: (1) funding, (2) leadership committed to organizing, supporting and guiding a long-term effort, and (3) the appropriate organizational structure to sustain it.

Forum participants agreed the first critical step is notifying the Western Governor's Association and appropriate federal, state, and local agency heads with budget authority to include significant funding for greater sage-grouse strategy implementation in their 2008 budgets. Deadlines for submitting budget requests are quickly approaching, and it is critical to identify and set aside funding for this purpose. Forum participants have taken responsibility for this action by preparing a letter for concurrence by the Forum that will be delivered to the Western Governor's Association and other appropriate federal, state and local agency heads.

Forum participants agreed the second critical step toward successful implementation of a range-wide strategy for greater sage-grouse is to establish an executive committee of federal, state, and local agency heads who have the authority to make decisions regarding allocation of resources (such as funding, personnel, work priorities, etc.) for strategy implementation. The executive committee would include a designated lead person who would be responsible for the maintenance, facilitation, and institutional memory of the executive committee.

The Forum participants agreed the third critical step would be to convene a group of people representing diverse interests on a regular basis to provide counsel and advice to the executive committee regarding strategy implementation. One suggestion by Forum participants was to maintain the Forum as a continuing structure to retain the strong relationships, collective knowledge, and collegiality developed throughout the Forum process. Whatever its structure, such a group would also be useful to support and ensure accountability for strategy implementation, and to be a vehicle to communicate key messages regarding greater sage-grouse and sagebrush habitat to their constituents. The group would require a structural mechanism to be convened, as well as resources to support their ongoing work.

Forum Communication Strategy

Forum participants recognize the interest of their constituents and the general public in the strategies they developed during the workshop process, critical needs they identified, unresolved concerns, and implementation suggestions. While the recommendations from the Forum will be incorporated to the fullest extent possible in the *Comprehensive Strategy*, participants advise the Framework Team and WAFWA of the importance to provide a mechanism to broadly share the Final Forum Report with interested persons, organizations, and agencies. To the extent it is individually possible, Forum participants agreed to share the Forum findings and recommendations with their colleagues, agency leadership and elected officials.

APPENDIX C2

Appendix 2
of the
Final Report of the
Greater Sage-grouse Range-wide Issues Forum

Forum Issues

Greater Sage-grouse Range-wide Issues Forum Strategies

[Note: These strategies are presented to the Framework Team for further refinement and integration into the ***Comprehensive Strategy****. Highlighted text reflects specific instructions or recommendations to the Framework Team to consider as they synthesize this information. All strategies contain goals and objectives. Many contain implementation actions and other elements of the strategy. Headings for these other elements of the strategy have been deleted where the participants were unable to get to this level of detail due to time constraints in the Forum process.]*

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ISSUE: HABITAT CONSERVATION AND LAND USE

SUB-ISSUE 1: Conservation and protection of habitats which are important and/or intact: "saving the best."

Goal: Conserve important and/or intact habitats and stabilize the loss of habitat across the range. [*Cross Reference with Habitat Conservation and Land Use Goals & Objectives.*

Objective 1 (short-term): In consort with LWGs, identify, prioritize and map important habitats and areas for conservation and protection across the range.

Implementation Actions:

- Develop criteria/protocol for assessing and prioritizing habitats for conservation (e.g. quality of habitat, risk factors). Consider developing protocols in the 7 sub-regions of the sagebrush biome. Include classification of habitats based on life cycle requirements (e.g. nesting, brood-rearing, wintering, etc.)
- Determine scale at which areas should be identified and prioritized: what size of area is needed to support sage grouse populations & genetic diversity.
- Map areas

Key Participants:

- USGS (sagemap)(lead)
- BLM,
- LWGs,
- State Wildlife Agencies,
- State repositories for automated data,
- NGOs: The Nature Conservancy, Nature Serve

Objective 2 (mid-term): Protect quality sage-grouse habitat from wildfire, invasive species, pinyon/juniper succession, improper livestock grazing practices, urban encroachment, roads & transmission lines, tall structures, and energy development.

Implementation Actions:

- Ensure that federal land management agency land use plans and any fire protection plans address sage-grouse needs in sage-grouse habitats.
- Implement projects that aid in the protection of quality sage-grouse habitats.
- Complete range-wide programmatic approval/authorization for federal land management agency use of pre-emergent herbicides (e.g., Oust, Plateau) to help retard cheatgrass germination.
- Continue implementation efforts regarding the Strategic Plan for the Coordinated Intermountain Restoration Project.
- Create incentives for landowners and land users to implement conservation and protection measures
- Provide financial and technical assistance to private landowners where feasible to help protect key sage-grouse habitats.
- Work with Native American Tribes whenever possible to help protect key sage-grouse habitats by providing consultation and technical assistance.

- Increase federal funding for wildfire suppression in sage-steppe ecosystems.
- Ensure that grazing strategies are conducive to healthy, sustainable, resilient sagebrush/perennial grass communities.
- Establish and enact ecologically sound range-wide, standardized guidelines for renewable and non-renewable energy exploration and development within sage-grouse/sagebrush habitats across state, provincial and jurisdictional boundaries consistent with sage grouse needs.

Measures of Success:

- Range-wide authorization of pre-emergent and other herbicides to control exotic annuals.
- Expedient response to wildfire in sagebrush habitats and incentives to get the fire out.
- Reduction in acres converted to non-habitat annually from previous rate of conversion.
- Increase in rate of restoration

Key Participants:

- BLM, USFS, USFWS, NRCS
- Native American Tribes
- State Wildlife Management Agencies

Objective 3 (long-term): Ensure that management practices and policies are geared toward maintaining or recovering sagebrush steppe habitat. This includes post-treatment management.

Implementation Actions:

- Establish a team to review federal land management policies and practices to determine whether or not they are effective at sustaining quality sagebrush habitats.
- Thorough and effective direction developed and incorporated into federal land use plans.
- Determine and convey land management practices that have not been conducive to maintaining or improving the needs of sage-grouse.
- Review and incorporate Guidelines to manage Sage-grouse and their Habitats (Connelly et. al. 2000).
- Encourage federal land management agency leadership to strive towards establishing or instituting policies and practices that improve and/or protect sagebrush steppe as agreed upon in the Memorandum of Understanding between WAFWA, USDA-FS and NRCS, and USDI – BLM, USFWS, and USGS.
- Develop and implement a research and monitoring program to assess the effectiveness of management practices geared toward conservation of important habitats.

Key Participants:

- BLM, USFS, USFWS, NRCS
- Science/Academic Community: USGS, Extension, Universities
- Native American Tribes
- State Wildlife Management Agencies

Time Frame:

- Ongoing with annual checks and updates

Objective 4: Establish monitoring program, protocols, and methods to evaluate status and trend of important habitats identified under objective 1 at the site and range-wide scales.

Implementation Actions:

- Compile and assess current monitoring activities
- Establish reference points in important habitat locations identified under objective 1 to monitor range-wide trends
- Establish common sampling strategies, and monitoring metrics and methods at the site and range-wide scales. Implement site-level monitoring that can be aggregated and synthesized at the range-wide scale. (reference quality habitat definition for condition objectives from Connelly et al)
  - Develop sampling strategy which incorporates different life cycle requirements (nesting, brood-rearing, wintering…etc.)
  - Establish reference points in selected representative habitats

Key Participants:

- NGOs: Audubon, Partners in Flight,
- Management Agencies: BLM, State, USFS
- USGS

SUB-ISSUE 2: Invasive Plant Species

Problem Statement: One of the most notable threats to the sagebrush ecosystem and greater sage-grouse habitat is invasive plants (e.g., cheatgrass, spotted knapweed, yellow starthistle, medusahead rye). Effects of invasive species on ecosystem function (e.g., altered fire regimes, nutrient loss, altered local microclimate, changes in community structure, prevention of succession) are significant at both local and regional scales, and are becoming increasingly more important on a global scale. Invasion by exotic species, particularly cheatgrass, is consistently cited as 1 of the major challenges to maintenance of healthy sagebrush communities.

Goal 1: Develop a comprehensive and range-wide list of invasive species which degrade sage-grouse habitats.

Objective 1.1: Identify and prioritize invasive species that pose the greatest risk by December 2007.

Objective 1.2: Review and recommend modification of State and Province noxious species lists to fund control measures of invasive species of concern by December 2008.

Goal 2: Identify and map the threat of invasive species within greater sage-grouse habitats.

Objective 2.1: Develop and apply range-wide models for the seven geographic subdivisions in the Sagebrush biome (e.g., spread vector analysis) to provide spatial estimates of the current and future risk of top priority invasive plant species by 2009 (short-term objective).

Objective 2.2: Develop range-wide and geographic zone maps of the current distribution of invasive plant species and compatible across different state or provincial boundaries by 2009-10 (Short-term objective).

Resources needed:

- Collate existing information and use Remote Sensing

Objective 2.3: For range-wide efforts, develop and implement site-specific detection surveys and protocols to maximize the likelihood of finding new patches of invasive plant species before they expand. By 2008 (Short-term objective).

Measures of success/monitoring responsibilities:

- Tie to land users and local interest groups in Goals 4 and 3.

Goal 3: Identify knowledge gaps and develop guidelines for control of invasive plant species within greater sage-grouse habitat.

Objective 3.1: Create methods to prioritize invasive species control on the basis of sagebrush habitat recovery potential in critical Sage-grouse range by 2008 (short-term objective).

Objective 3.2: Compile and/or identify, and implement, integrated invasive species control methods for the 7 geographic subdivisions in the Sagebrush biome by 2008 (e.g., grazing, mowing, seeding, herbicides) (short-term objective).

Objective 3.3: Compile and/or identify, and implement, beneficial management practices to minimize negative impacts of invasive species control methods in objective #2 on greater sage-grouse populations and their habitats (e.g., do not conduct any vegetation treatments during nesting and early-brood rearing periods when sage-grouse are present) by 2008.

Goal 4: Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.

Objective 4.1: Compile and/or identify, and implement, guidelines for containment of existing infestations (e.g., border spraying, planting barriers of aggressive plants, grazing to minimize seed production) by 2008.

Objective 4.2: Compile and/or identify, and implement, beneficial management practices pertinent to domestic livestock and wildlife that will minimize the spread of invasive species by 2008.

Objective 4.3: Compile and/or identify, and implement, beneficial management practices pertinent to access, vehicles, and equipment that will minimize the spread of invasive species by 2008.

Objective 4.4: Develop and implement plans for areas treated for invasive species incorporating a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the re-invasion of undesirable species. Coordinate with Restoration Strategies.

Measures of success/monitoring responsibilities:

- Maintain cumulative records for invasive plants treatment and prevention programs to evaluate site specific and cumulative impacts to sage-grouse habitats.

Objective 4.5: Anticipate infestations of new invasive species and educate to target and prevent establishment, now to forever!

Goal 5: Integrate and coordinate invasive species management throughout greater sage-grouse habitat to increase effectiveness. Coordinate with Integration Strategies.

Objective 5.1: Develop partnerships among regional public and private land management entities to develop and implement identified objectives by 2008.

Objective 5.2: Solicit involvement of local weed management specialists, private landowners, wildlife biologists, and range ecologists to share knowledge and develop response plans for invasive species by 2008.

Objective 5.3: Supplement existing invasive species control programs with materials specific to the benefits of proactive management within sage grouse habitats (including weed identification, mechanisms for invasion and dissemination of invasive species, and methods of treating) by 2008.

Key actors/participants:

- State and federal agencies, local experiment stations, and local (county) weed districts

SUB ISSUE 3: LIVESTOCK GRAZING

Problem Statement: Landscapes managed for livestock grazing may fail to provide optimum habitat for sage grouse.

Goal 1: Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.

Objective 1.1: Use scientific data and historic information to establish baseline information (e.g. Ecological Site Descriptions) when evaluating soil quality and ecological processes in sage grouse habitats.

Measures of success/monitoring responsibilities:
- Completion and availability of baseline information

Key actors/participants:
- NRCS, BLM, FS, research community, State agencies, LWGs

Objective 1.2: Use WAFWA habitat guidelines where achievable considering Ecological Site Descriptions and rangeland health standards to implement flexible and appropriate grazing management systems (season of use, grazing duration, kind of livestock, and stocking intensity).

Measures of success/monitoring responsibilities:
- Federal Agencies, States, landowners and LWGs adopt and implement rangeland assessment processes that use WAFWA guidelines where appropriate; implementation of conservation plans consistent with WAFWA guidelines, where appropriate, on private lands.
- Historical grazing systems, or experimental designs, that can demonstrate achievement of population goals, but are not consistent with WAFWA guidelines, will be monitored for continued, sustainable, Greater sage-grouse populations and distribution consistent with State plans.

Key actors/participants:
- Landowners, permittees, BLM, FS, NRCS, State agencies, LWGs

Objective 1.3: Develop and/or adopt a consistent monitoring program that address effects of grazing management systems and show trends over time. In addition to monitoring progress towards achieving the WAFWA guidelines, monitor the response of vegetation (vigor and production), and the compositional diversity of species. Use monitoring methods that are best suited to the type of grazing management being practiced at a site.

Measures of success/monitoring responsibilities:
- Monitoring programs in place and active; documentation of condition relative to WAFWA guidelines.

Key actors/participants:
- Private landowners, permittees, BLM, FS, NRCS, State agencies (land and wildlife agencies), academia (university extension), LWGs, FWS

Objective 1.4: Encourage the coordination of landscape management activities on private, federal, state and tribal lands to provide yearlong benefits to sage grouse.

Measures of success/monitoring responsibilities:
- Management of sage-grouse habitats is compatible across jurisdictions; State plans are coordinated across state lines.

Key actors/participants:
- Federal and State agencies, Tribes, private landowners, permittees, NGOs, State sage-grouse working groups, LWGs

Objective 1.5: Offer incentives when and where appropriate to achieve sage grouse habitat objectives.

Measures of success/monitoring responsibilities:
- Incentive programs established and functional

Key actors/participants:
- USDA, FWS, NGOs, State agencies, industry, BIA, State technical committees (via USDA)

Objective 1.6: Review current land management agencies' grazing programs to ensure consistency and compatibility with the Comprehensive Strategy.

Measures of success/monitoring responsibilities:
- Plans are reviewed and updated/modified, if necessary

Key actors/participants:
- BLM, FS, State agencies, WAFWA

SUB-ISSUE 4: Agriculture Lands (irrigated and non irrigated crop and haylands and CRP)

Problem Statement: Agriculture lands are usually associated with private and/or tribal ownership and therefore have unique issues when dealing with sage-grouse habitat. Sage-grouse utilize these managed lands, especially alfalfa for food and cover. Management of agricultural lands can adversely affect sage-grouse (e.g. pesticides and crop harvesting). Existing programs (e.g. CRP) may encourage conversion of habitat to cropland, contains few incentives to protect and enhance sage grouse habitat, but also can become a more significant vehicle for recreating sage grouse habitat.

Desired Condition: Agricultural lands are managed to minimize or avoid adverse impacts on sage-grouse.

Goal 1: Identify where agriculture lands are associated with sage-grouse habitat.

Objective 1.1: Identify and prioritize agriculture lands that provide the greatest habitat value for sage-grouse.

Implementation actions/timeline:
- To be initiated within 1 year of the publication of the conservation strategy. The project will be completed within 2 years.

Measures of success/monitoring responsibilities:
- GIS product, criteria for habitat value.

Key actors/participants:
- NRCS, FS, USGS, BLM, State F&G

Resources needed: $50,000

Goal 2: Implement management practices on agriculture lands that protect or minimize harm to sage-grouse

Objective 2.1 Encourage spot treatment of weeds instead of whole field/pasture chemical treatment.

Implementation actions/timeline:
- To be initiated within 1 year of the publication of the conservation strategy. (Efforts are ongoing currently and need to be expanded)

Measures of success/monitoring responsibilities:
- Percent of affected acres treated. LWGs will monitor.

Key actors/participants:
- NRCS, Extension Service, local soil and water conservation districts and LWGs.

Milestones/monitoring:
- What is practical

Resources needed:
- Farm bill incentive payments as targeted by the NRCS working with their state technical committees.

Objective 2.2 Provide information and incentives to minimize application of insecticides in hayfields.

Implementation actions/timeline:
- To be initiated within 1 year of the publication of the conservation strategy. (Efforts are ongoing currently and need to be expanded)

Measures of success/monitoring responsibilities:
- Percent of affected acres treated. LWGs will monitor.

Key actors/participants:
- NRCS, Extension Service, local soil and water conservation districts and LWGs.

Resources needed:
- Farm bill incentive payments as targeted by the NRCS working with their state technical committees.

Objective 2.3 Provide agricultural producers information and incentives on harvesting techniques that reduce bird mortality.

Implementation actions/timeline:
- To be initiated within 1 year of the publication of the conservation strategy.

Measures of success/monitoring responsibilities:
- Percent of affected acres treated. LWGs will monitor.

Key actors/participants:
- NRCS, Extension Service, local soil and water conservation districts and LWGs.

Resources needed:
- Farm bill incentive payments as targeted by the NRCS working with their state technical committees.

Objective 2.4 Identify the extent to which agricultural water management and infrastructure contributes to the threat of West Nile virus.

Implementation actions/timeline:
- To be initiated within 1 year of the publication of the conservation strategy.

Key actors/participants:
- Academia, APHIS, ARS

Goal 3: Adjust incentives to encourage the retention and restoration of sagebrush habitat.

Objective 3.1 Identify incentives that are counter-productive to the retention of sage-grouse habitat.

Implementation actions/timeline:

- To be initiated within 1 year of the publication of the conservation strategy.

Key actors/participants:

- NRCS, FSA, Extension Service, local soil and water conservation districts, NGOs and LWGs.

Objective 3.2 Modify and fund existing programs to encourage the retention of sage-grouse habitat (e.g. Grasslands Reserve Program, Landowner Incentive Program) and restoration of sage-grouse habitat (CRP).

Key actors/participants:

- NRCS, FSA, Extension Service, local soil and water conservation districts, NGOs and LWGs.

Objective 3.3 Prioritize re-enrollment of CRP lands providing habitat or adjacent to existing sage-grouse populations or other sensitive or declining species.

Key actors/participants:

- FSA, Extension Service, local soil and water conservation districts and LWGs.

SUB-ISSUE 5: Fences increase sage-grouse mortality

Problem Statement: Sage-grouse now occupy areas that have been modified by fencing. Sage-grouse mortalities have been attributed to collisions with fencing (Call and Maser 1985, Danvir 2002). Fences also provide perches for raptors and corvids, thus possibly increasing predation risks. Lastly, fencing may modify access and movements by humans and livestock, thereby possibly increasing levels of disturbance. Concomitantly, fencing provides a cost-effective mechanism to manage livestock distribution and improve range and habitat condition. More information is needed regarding measures or fencing modification that can be implemented to mitigate the potential mortality risks they constitute to sage-grouse.

Desired Condition: Fence design, siting, extent or modification will mitigate potential impacts on sage-grouse and enhance range or habitat conditions.

Goal 1: Summarize or quantify the direct and indirect effects of fences on sage-grouse

Objective 1.1: Compile and analyze all known accounts of direct and indirect impacts of fencing on sage grouse and similar species to identify high risk situations.

Implementation actions/timeline:
- To be initiated within 1 year of publication of the conservation strategy. The project would be completed within one year after initiation date.

Measures of success/monitoring responsibilities:
- Framework Team

Key actors/participants:
- University or consultant

Resources needed:
- $25,000

Goal 2: Compile all known efforts regarding fence design, siting or modifications that have been used to mitigate the potential effect of fences on sage-grouse.

Objective 2.1: Compile and analyze all known anecdotal observations, research and/or case studies regarding fence design, siting and modifications that have been implemented to mitigate the direct and indirect impacts of fencing on sage grouse and similar species.

Implementation actions/timeline:
- To be initiated within 1 year of publication of the conservation strategy. The project would be completed within one year after initiation date.

Measures of success/monitoring responsibilities:
- Framework Team

Key actors/participants:
- University or consultant

Resources needed: $25,000

Goal 3: Implement and evaluate/monitor the effectiveness of proposed fence design, siting and modifications on mitigation direct and indirect impacts on sage-grouse.

Objective 3.1 Conduct site specific evaluation of fence designs or modifications proposed to mitigate the direct and indirect impacts on sage-grouse. The site specific locations would be identified under Objective 1.1.

Implementation actions/timeline:
- To be initiated within 1 year after completion of Objectives 1 and 2.

Measures of success/monitoring responsibilities:
- Framework Team

Key actors/participants:
- University or consultant

Resources needed:
- $100,000 per location identified

Implementation actions/timeline:
- To be completed within 3 years after initiation.

Goal 4: Disseminate the results of the work conduct under Objectives 1-3.

Objective 4.1 Publish site-specific fencing best management recommendations regarding design, siting and modifications that demonstrate the greatest potential to mitigate the direct and indirect impacts on sage-grouse.

Implementation actions/timeline:
- To be initiated within 1 year after completion of Objectives 1.1, 2.1, and 3.1.

Measures of success/monitoring responsibilities:
- Framework Team

Key actors/participants:
- University or consultant

Resources needed:
- Included as part of the funding to conduct the evaluation contracts initiate under objective 3.1.

Objective 4.2 Promote and distribute site-specific fencing best management recommendations regarding design, siting and modifications that demonstrate the greatest potential to mitigate the direct and indirect impacts on sage-grouse.

Implementation actions/timeline:
- To be initiated within 1 year after completion of Objectives 1.1, 2.1, and 3.1.

Measures of success/monitoring responsibilities:
- Framework Team

SUB-ISSUE 6: Changes in surface hydrology.

Problem Statement: Human-constructed impediments to natural surface drainage present a possible, but poorly understood, threat to sagebrush ecosystems and Greater Sage- Grouse. Drainage impediments can reduce the input of water, nutrients and sediments, which help to sustain and recruit sagebrush.

Sagebrush habitats often (but not exclusively) occur in riparian areas, on fans, terraces, or in valley bottoms. The sagebrush ecosystem may be dependent on the input of water, nutrients and sediments from episodic precipitation events that promote overflow. Sagebrush systems are most productive in late spring and early summer, when precipitation and warm temperatures coincide (West 1983, cited in Connelly et al. (2004, pg. 7-18)).

The artificial diversion of water can result in a loss of either riparian or wet meadow habitats, and possibly affect the health of silver sage systems (From Discussion Paper).

Desired Condition: Properly functioning hydrologic systems that enhance sage-grouse populations or habitat conditions.

Goal 1: Determine the effects of water management on the sagebrush biome.

Objective 1.1: Assess climate records and other available data for selected locations in the sagebrush biome, for extreme precipitation events and runoff events that may have impacted sage-grouse or sagebrush.

Measures of success/monitoring responsibilities:
- Analysis of available climate information from all possible sources.

Key actors/participants:
- USGS, NOAA, Academia, Environment Canada

Resources needed:
- Facilitation, conference calls, materials, information.

Objective 2: Test the hypothesis of how changes in water management can increase the productivity of sagebrush ecosystems and enhance sage-grouse populations. This should include a detailed investigation in strategically-selected sagebrush habitats, to assess the importance of surface water flow (including nutrients and sediments) for the maintenance of sagebrush habitats.

Measures of success/monitoring responsibilities:
- Completion and distribution of research.

Key actors/participants:
- USGS, Academia, ARS, Environment Canada

SUB-ISSUE 7: Energy Corridors

Energy corridors, which may include pipelines (both above and below ground), high voltage transmission lines, associated facilities (pumping stations, compressors, etc.) and transportation systems (roads and railroads), are linear features of varying widths extending across large expanses of sagebrush habitat in some states. Section 368 of the Energy Policy Act of 2005 directs Federal agencies within 2 years to designate additional energy corridors on Federal land in 11 Western states for oil, gas and hydrogen pipelines and electricity transmission and distribution facilities.

Problem Statement: The placement of energy corridors and associated facilities within Greater sage-grouse habitat and the activities associated with these corridors may lead to negative impacts to Greater sage-grouse and sagebrush habitats.

Desired Condition: New energy corridors avoid or minimize impacts on Greater sage-grouse and sagebrush habitat. Impacts of existing corridors are mitigated.

Goal 1: Evaluate effects of existing energy corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.

Objective 1.1: Review existing research studies and monitoring data for effects of energy corridors and associated facilities on Greater sage-grouse or sagebrush habitat.

Implementation actions/timeline:
- Assemble review team (WAFWA Framework Team) – 1 month
- Team reviews existing studies and data – 3 months
- Team produces report summarizing key findings – 6 months

Measures of success/monitoring:
- Completion and publication of report

Key actors/participants:
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- NRCS
- DOE
- University research staff
- Utility and energy companies
- County weed boards

Milestones/monitoring:
- See timeline for milestones
- Progress monitored by WAFWA Framework Team

Resources needed:
- $100,000 to conduct review and publish report

Objective 1.2: Design and conduct additional research and monitoring studies to determine effects of existing and proposed energy corridors and associated facilities on sage-grouse and sagebrush habitat.

Implementation actions/timeline
- Identify research/monitoring team – 1 month
- Design research and monitoring studies – 12 months
- Obtain funding - 1-2 years
- Conduct research/monitoring – 2-5 years
- Report results – annually

Measures of success/monitoring
- Completion of research design
- Funding obtained
- Results reported

Key actors/participants
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- NRCS
- DOE
- University research staff
- Utility and energy companies
- County weed boards

Milestones/monitoring:
- See timeline, measures of success; monitoring by WAFWA Framework Team

Resources needed:
- $500,000/yr for design team and research

Goal 2: Based on research and monitoring data, develop consistent criteria and management guidelines to locate energy corridors and operate and maintain facilities within energy corridors that cross critical sage-grouse habitat in a manner that minimizes impacts to sage-grouse and sagebrush habitat.

Objective 2.1: Develop siting criteria and management guidelines for locating energy corridors and operating facilities within energy corridors to minimize impacts.

Implementation actions/timeline:
- Identify criteria and guidelines team – 1 month
- Team reviews existing research and monitoring data and report from Goal 1, Objective 1 – 1 month after report from Goal 1, Obj. 1
- Team develops criteria and guidelines to locate, operate and maintain energy corridors – 4 months
- Agencies, industry and stakeholders review criteria and guidelines – 1 month
- Agencies and industry incorporate criteria and guidelines into new corridor design – 6 months

Measures of success/monitoring:
- Completion of criteria and guidelines
- Incorporation of criteria and guidelines into new corridor designs

Key actors/participants:
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- University research staff
- Utility and energy companies
- Local communities and working groups

Milestones/monitoring:
- See timeline for milestones; monitoring by WAFWA Framework Team

Resources needed:
- $30,000

Goal 3: Cooperatively develop and adopt appropriate mitigation measures and best management practices for constructing new facilities within energy corridors and conducting operation and maintenance activities associated with facilities within energy corridors that will minimize impacts to sage-grouse and sagebrush habitat.

Objective 3.1: Develop mitigation measures and best management practices for construction and operation of new facilities within energy corridors.

Implementation actions/timeline:
- Identify mitigation team – 1 month
- Team develops mitigation measures/BMPs based on existing research and monitoring, currently adopted criteria and management guidelines – 3 months
- Review by agencies, industry and stakeholders – 1 month
- Incorporate mitigation measures/BMPs into new corridor design – 6 months

Measures of success/monitoring:
- Development of mitigation measures/BMPs
- Incorporation of mitigation measures/BMPs within 6 months of development

Key actors/participants:
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- University research staff
- Utility and energy companies
- County weed boards

Milestones/monitoring
- See timeline for milestones; monitoring by WAFWA Framework Team

Resources needed:
- $30,000

Goal 4: Cooperatively develop and implement appropriate monitoring plans to assess effects of new facilities within energy corridors on sage-grouse and sagebrush habitat and adjust mitigation measures and best management practices based on monitoring results.

Objective 4.1: Develop and implement monitoring plans to measure effects of facilities within energy corridors on sage-grouse and sagebrush habitats.

Implementation actions/timeline:
- Identify monitoring team – 1 month
- Design monitoring studies – 6 months
- Conduct monitoring – on-going
- Report results – annually

Measures of success/monitoring:
- Completion of monitoring design
- Annual reports completed

Key actors/participants
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- University research staff
- Utility and energy companies
- County weed boards

Milestones/monitoring:
- See timeline, measures of success; monitoring by WAFWA Framework Team

Resources needed:
- $500,000/yr for monitoring

Objective 4.2: Adjust mitigation measures and BMPs based on monitoring results.

Implementation actions/timeline:
- Adjust mitigation measures and BMPs (as needed) – annually

Measures of success/monitoring
- Incorporation of new mitigation measures in operating plans.

Key actors/participants
- BLM State and Field Office staff
- USFS Region and Research Station staff
- DOE
- Utility and energy companies

Milestones/monitoring:
- See timeline, measures of success; monitoring by WAFWA Framework Team

Resources needed:
- Case-by-case

SUB-ISSUE 8: ROADS AND RAILROADS

Problem Statement: Placement, use, construction, and maintenance of roads and railroads in Greater sage-grouse habitat may lead to negative impacts to Greater sage grouse.

Desired Condition: Minimize or mitigate impacts of existing roads and railroads on Greater sage-grouse, and site new roads and railroads to avoid or minimize impacts to Greater sage-grouse.

Goal 1: Evaluate effects of existing roads, trails and railroad corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.

Objective 1.1: Review existing available published research and monitoring data for effects of roads and railroads sage-grouse, related species, or sagebrush habitat

Implementation actions/timeline
- Assemble review team (WAFWA Framework Team) – 1 month
- Team reviews existing studies and data – 3 months
- Team produces report summarizing key findings – 6 months

Measures of success/monitoring
- Completion of report

Key actors/participants:
- WAFWA Directors
- WAFWA Framework Team
- State DOTs
- County Highway and Road Depts.
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- NRCS
- DOE
- University research staff
- County weed boards
- WAFWA prairie grasslands coordinator
- Local working groups

Milestones/monitoring:
- See timeline for milestones
- Monitored by WAFWA Framework Team

Resources needed:
- 1-2 person team to review studies and develop report

Objective #2: Design and implement additional research and monitoring studies to fill information gaps related to effects of existing and potential roads or railroads on sage-grouse and sagebrush habitat.

Implementation actions/timeline
- Identify research/monitoring team – 1 month
- Design research and monitoring studies – 12 months
- Obtain funding - 1-2 years
- Conduct research/monitoring – 2-5 years
- Report results – annually

Measures of success/monitoring
- Completion of research design
- Funding obtained
- Results reported

Key actors/participants
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- State Dots
- County Highway Depts.
- U.S. Dept. of Transportation
- USFS Region and Research Station staff
- USGS research staff
- NRCS
- DOE
- University research staff
- County weed boards
- Local working groups
- Interstate Prairie Dog Coordinator

Milestones/monitoring:
- See timeline, measures of success; monitoring by WAFWA Framework Team

Resources needed:
- 3-4 person design team
- $30,000

Goal 2: Develop consistent criteria and management guidelines to locate, construct, maintain, or close roads and railroads, to minimize impacts to sage-grouse and sagebrush habitat.

Objective 2.1: Cooperatively develop management guidelines or best management practices for locating, constructing, maintaining, or closing roads, trails, and rail systems.

Implementation actions/timeline
- Identify criteria and guidelines team – 1 month
- Team reviews existing research and monitoring data and report from Goal 1, Objective 1 – 1 month after report from Goal 1, Obj. 1
- Team develops criteria and guidelines to locate, construct, maintain, or close roads and railroads – 4 months
- Agencies, industry and stakeholders review criteria and guidelines – 1 month
- Agencies incorporate criteria and guidelines into new road design – 6 months

Measures of success/monitoring
- Completion of criteria and guidelines
- Incorporation of criteria and guidelines into new road and railroad designs

Key actors/participants
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- State DOTs
- County Highway and Road Depts.
- University research staff
- Local communities and working groups
- WAFWA prairie grasslands coordinator

Milestones/monitoring:
- See timeline for milestones; monitoring by WAFWA Framework Team

Resources needed:
- $30,000

Goal 3: Implement appropriate mitigation measures or best management practices for constructing and maintaining roads and railroads within sagebrush habitat that will minimize impacts to sage-grouse and sagebrush habitat.

Objective 3.1: Implement mitigation measures or best management practices for construction and maintenance of new roads and railroads.

Implementation actions/timeline:
- Identify mitigation team – 1 month
- Team develops mitigation measures/BMPs based on existing research and monitoring, currently adopted criteria and management guidelines – 3 months

- Review by agencies, industry and stakeholders – 1 month
- Incorporate mitigation measures/BMPs into new corridor design – 6 months

Measures of success/monitoring:

- Development of mitigation measures/BMPs
- Incorporation of mitigation measures/BMPs within 6 months of development

Key actors/participants

- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- University research staff
- County weed boards
- State DOTs
- County Highway and Road Depts.
- WAFWA prairie grasslands coordinator

Milestones/monitoring:

- See timeline for milestones; monitoring by WAFWA Framework Team

Resources needed:

- $50,000

Goal 4: Cooperatively develop monitoring plans to assess effects of roads and railroads and to measure effectiveness of BMPs and mitigation measures in minimizing effects of roads on sage-grouse and sagebrush habitat.

Objective 4.1: Develop monitoring plans to measure effectiveness of BMPs and mitigation measures in minimizing effects of roads and railroads on sage-grouse and sagebrush habitats.

Implementation actions/timeline
- Identify monitoring team – 1 month
- Design monitoring studies – 6 months
- Conduct monitoring – on-going
- Report results - annually

Measures of success/monitoring
- Completion of monitoring design
- Annual reports completed

Key actors/participants
- WAFWA Directors
- WAFWA Framework Team
- BLM State and Field Office staff
- USFS Region and Research Station staff
- USGS research staff
- DOE
- University research staff
- County weed boards
- State DOTs
- County Highway and Road Depts.
- WAFWA prairie grasslands coordinator

Milestones/monitoring:
- See timeline, measures of success; monitoring by WAFWA Framework Team

Resources needed:
- $100,000

Objective 4.2: Adjust mitigation measures and BMPs based on monitoring results.

Implementation actions/timeline:
- Adjust mitigation measures and BMPs (as needed) – annually

Measures of success/monitoring:
- Incorporation of new mitigation measures in operating plans.

Key actors/participants
- BLM State and Field Office staff
- USFS Region and Research Station staff
- DOE

Milestones/monitoring:

- See timeline, measures of success; monitoring by WAFWA Framework Team

SUB-ISSUE 9: TALL STRUCTURES

Tall structures – including power lines, communication towers, wind turbines, and other installations.

Problem Statement: Tall structures and associated activities in Greater sage-grouse habitat may lead to negative impacts on Greater sage-grouse.

Desired Condition: Existing and new tall structures have no or minimal impacts on Greater sage-grouse.

Goal 1: Compile and evaluate existing published research on effects to Greater sage-grouse due to direct impacts of existing tall structures.

Objective 1.1: Evaluate adequacy of existing research information to assess or predict potential direct impacts of tall structures.

Implementation actions/timeline:
- Compile existing research studies/reports – 06/07
- Formation of peer group evaluation team – 06/07
- Evaluation of research and report findings – 09/07

Measures of success/monitoring:
- Complete evaluation and report
- Publish report and widely communicate findings

Key actors/participants:
- Scientific research team (industry, university, and agency)

Milestones/monitoring:
- Evaluation report by 09/07

Resources needed:
- $30,000 for data search, review and reporting

Goal 2: Develop research protocols for conducting new studies to assess direct impacts of tall structures.

Objective 2.1: Develop peer reviewed and scientific protocols to assess impacts of tall structures and potential mitigation methods.

Implementation actions/timeline:
- Formation of peer group evaluation team – 10/07
- Development of research and mitigation assessment protocol methods – 2/08

Measures of success/monitoring:
- Development of research and mitigation assessment protocol methods

Key actors/participants:
- Scientific research team

Milestones/monitoring:
- Protocol methods by 2/08

Resources needed:
- $30,000 for development of protocols

Goal 3: Develop scientific and consistent siting and Operation & Maintenance (O&M) criteria for "tall structures" in Greater sage-grouse habitat that will minimize negative impacts on Greater sage-grouse.

Objective 3.1: Compile existing siting and O&M criteria or conditions in federal, state and local working group plans pertaining to tall structures.

Implementation actions/timeline:
- Compile and summarize existing siting and O&M criteria – 10/07

Measures of success/monitoring:
- Completion of data compilation

Key actors/participants:
- Research team

Milestones/monitoring:
- Completion of data search by 10/07

Resources needed:
- $30,000 for data compilation

Objective 3.2: Develop consistent siting guidelines for tall structures.

Implementation actions/timeline:
- Formation of technical group evaluation team – 10/07
- Development of siting guidelines and assessment methods – 2/08
- Development of research and mitigation assessment protocol methods

Measures of success/monitoring:
- Acceptance and implementation of guidelines

Key actors/participants:
- Industry
- USFWS, BLM, USFS
- Local working groups
- Researchers

Milestones/monitoring:
- Siting guidelines by 10/08
- $30,000 for development of siting guidelines

Goal 4: Develop best management practices (BMPs) and appropriate mitigation measures that can be implemented for siting and O&M activities associated with tall structures.

Objective 4.1: Cooperatively develop best management practices and appropriate mitigation measures.

Implementation actions/timeline:
- Formation of technical team – 10/07
- Development of BMPs and mitigation recommendations – 2/08

Measures of success/monitoring:
- Development of industry accepted BMP and mitigation methods

Key actors/participants:
- Industry
- USFWS, BLM, USFS
- Local working groups

Milestones/monitoring:
- BMP recommendations by 10/08

Resources needed:
- $30,000 for development of BMP/mitigation recommendations

SUB-ISSUE 10: Urban/Exurban Development

Problem Statement: Human populations have grown and expanded greatly over the past century, particularly in the western portion of the sagebrush biome. The footprint of exurban development (low-density development occurring beyond the limits of incorporated towns and cities) is now 5 to 10 times larger than the urban footprint. Although exurban development may continue to provide some sagebrush habitat in contrast to total urban conversion, the effects of fencing, power lines, road fragmentation, and disturbance from human dwellings and activities associated with exurban development render much of it inhospitable to sage-grouse and other wildlife dependent on sagebrush habitats.

Desired Condition: Impacts of urban and exurban development on Greater sage-grouse and their habitats are avoided or minimized.

Goal 1: Avoid or minimize incursion of urban and exurban development into greater sage-grouse habitats.

Objective 1.1: Identify sage-grouse habitats most at risk to urban and exurban development.

Implementation actions/timeline:

- Determine size of problem -- estimate current and anticipated future rate of loss of sage-grouse habitat to urban and exurban development -- 4/07
- Determine areas most at risk -- identify sage-grouse habitats likely to experience greatest growth in urban and exurban development -- 8/07
- Within at-risk areas, examine how communities are planning to accommodate growth in their county comprehensive plans or similar documents -- 8/07
- Complete analysis and report to agencies and public -- 12/07

Measures of success/monitoring:

- Completion of analysis and report
- Analysis is used to achieve Objective #2

Key actors/participants:

- Agency investigators or outside vendor
- Counties
- LWGs
- State fish and wildlife and land use agencies
- University/other experts in geography and demography

Milestones/monitoring:

- Evaluation report by 2/08

Resources needed:
- Funding for analysis and reporting

Objective 1.2: Promote efforts to maintain ecologically sustainable private lands and economically viable ranches in sage-grouse habitats.

Implementation actions/timeline:
- Within sage-grouse habitats at risk of urban/exurban development, identify tools available to maintain habitats on private lands, such as zoning, conservation easements, transferable development credits -- 6/08
- Make information on tools readily accessible to local jurisdictions, LWGs, stakeholders, and communities -- 12/08
- Encourage coordinated zoning among local communities and coordinated actions by land trusts -- 12/08
- Encourage clustered and other high density development to minimize loss of sage-grouse habitat.
- Build dialogue between ranchers and environmental organizations -- 12/08
- Conduct survey on cost of community services and make readily accessible to local jurisdictions to help them understand the cost differential between exurban development and ranching -- 6/08
- Identify funding sources and incentives to maintain sage grouse habitats on private lands

Measures of success/monitoring:
- Completion of implementation actions
- Economically viable and ecologically sustainable ranchlands in sage-grouse habitats are maintained

Key actors/participants:
- Agency or contract staff to conduct implementation actions
- Ranchers
- Environmental and conservation organizations
- LWGs
- Local officials
- State/provincial wildlife and land use agencies
- Land trusts

Milestones/monitoring:
- Biennial monitoring of ranchland acreage and urban/exurban development trends in at-risk sage-grouse habitats

Resources needed:
- Funding and/or staff for implementation actions

Objective 1.3: Develop and implement governmental land management agency land tenure policies to acquire, maintain, or enhance greater sage-grouse habitats.

Implementation actions/timeline:
- Identify lands with sage-grouse habitats at risk of disposal by governmental agencies.
- Review existing land tenure policies

- Develop criteria for land tenure adjustments for sage-grouse habitat.
- Modify policies/plans to incorporate criteria.
- Identify sources to fund land tenure adjustments

Measures of success/monitoring:

- Policies modified and criteria incorporated into plans
- Acres conserved

Key actors/participants:

- Agency personnel
- Counties
- LWGs
- Elected officials

Milestones/monitoring:

- Annual report of acres conserved

Resources needed:

- Funding for land tenure adjustments

SUB-ISSUE 11: Dispersed Recreation (Effects on Greater sage-grouse and their habitats)

Definition: Dispersed Recreation-Any recreational activity that displaces or disturbs greater sage-grouse or negatively affects their habitats. This includes but is not limited to use of ATV's, ORVs, bicycles, hiking (with or without pets), shed antler searches, skiing (and other related snow activities), camping (outside of established camp grounds), etc.

Problem Statement: Greater sage-grouse and habitat used by the species can be negatively impacted by dispersed recreational activities.

Goal 1: Manage dispersed recreational activities to avoid, reduce, and where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.

Objective 1.1: Review what is known about impacts of dispersed recreation on greater sage-grouse.

Implementation actions/timeline:
- Identify scope of review, methods, etc. by 1 October 2006.
- Secure funding and political support for review by 1 December
- 2006.
- Complete review and report to agencies and public (allow for
- public review) by 31 December 2007.

Measures of success/monitoring responsibilities:
- Completion of review and report
- Report is used by agencies to resolve issue.

Key actors/participants:
- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- USFS Regional Offices/Directors
- NRCS
- SCDs
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:
- See timelines for milestones
- Monitored by WAFWA Framework Team

Resources needed:
- 1-3 investigators
  $300,000.00

Objective 1.2: Review what is known about effects of dispersed recreational activities on greater sage-grouse habitat.

Implementation actions/timeline:
- Identify scope of review, methods, etc. by 1 October 2006.
- Secure funding and political support for review by 1 December 2006.
- Complete review and report to agencies and public (allow for public review) by 31 December 2007.

Measures of success/monitoring responsibilities:
- Completion of review and report
- Report is used by agencies to resolve issue.

Key actors/participants:
- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- USFS Regional Offices/Directors
- NRCS
- Scads
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:
- See timelines for milestones
- Monitored by WAFWA Framework Team

Resources needed:
- 1-3 investigators
- $300,000.00

Objective 1.3: Develop management practices to avoid, reduce, or eliminate disturbance to or displacement of greater sage-grouse and effects to greater sage-grouse habitat from dispersed recreational activities.

Implementation actions/timeline:
- Secure funding for developing management practices by 1 February 2008.
- Develop management practices by 1 July 2008.
- Present management practices to agencies and public (allow for public review) by 1 July 2008.

Measures of success/monitoring responsibilities:
- Completion of preparation of management practices.
- Management practices are used by agencies to resolve issue.

Key actors/participants:
- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- USFS Regional Offices/Directors
- NRCS

- Scads
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:
- See timelines for milestones
- Monitored by WAFWA Framework Team

Resources needed:
- 1-3 investigators
- $300,000.00

Objective1. 4: Implement management practices to avoid, reduce, or eliminate negative impacts of recreational activities on greater sage-grouse and their habitat.

Implementation actions/timeline:
- Implement management practices by 1 October 2008.

Measures of success/monitoring responsibilities:
- Amount of habitat protected by management practices
- WAFWA Framework Team and Agencies

Key actors/participants:
- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- USFS Regional Offices/Directors
- NRCS
- Scads
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:
- Reports of disturbance or displacement of greater sage-grouse decrease by 75% starting 1 October 2008.
- Documented impacts to greater sage-grouse habitat due to dispersed recreational activities decreases by 75%.
- Monitored by WAFWA Framework Team.

Resources needed:
- Agency compliance.
- $300,000.00 per year for preparation and implementation of management plans.

SUB ISSUE 1: Non-renewable resources

Problem Statement: Potential impacts to Greater Sage-grouse and sagebrush habitats from the recovery of 'non-renewable' resources (oil, gas, coal-bed methane, natural gas, geothermal, metallic and non-metallic minerals, *etc*.) include direct habitat loss, habitat fragmentation from vegetation removal, roads, powerlines, and pipeline corridors, noise, air quality, changes in water availability and quality, and increased human presence.

Surface mining of mineral resources (coal, uranium, copper, bentonite, gypsum, oil shale, phosphate, limestone, aggregates, *etc*) results in direct habitat loss for sage-grouse if the mining occurs in occupied sagebrush habitats.

1. *Non-Renewable Energy Activities*
    a. *Oil/Gas/CBM – resource typically recovered through 'solution or fluid' recovery (wells) (in situ mining)*
    b. *Surface Coal/Oil Shale/Tar Sands – resource typically recovered through surface mining*

2. *Metallic/Non-metallic Minerals – resource typically recovered through surface mining*

The basis for this distinction, and in a practical sense, 1b and 2 are very similar, was both generally regulatory structure and 'disturbance' or facilities. Surface mining activities are generally localized and have 'support facilities' (roads, powerlines) feeding them while the hydrocarbon recovery activities tend to have more 'weblike' or link and node facilities (wells, pumps, pipelines, compressors) over much larger areas

Goal 1: Enhanced Greater Sage-grouse habitats and populations, with assurance of no 'net loss'[1] of habitat or grouse populations, at an appropriate spatial and temporal scale, while providing for non-renewable resource development and utilization.

Objective 1.1: Develop no 'net loss' criteria and methods to accurately assess current habitat/population status, potential impacts and mitigation needs (e.g. habitat equivalency, mitigation ratios, mitigation banking), and mechanisms for implementation. *The Framework Team needs to apply across all land uses.*

Implementation actions/timeline:

- WAFWA contracts independent experts to develop criteria to define no 'net loss' (modeled roughly after Section 404 CWA) by DATE.
    - Develop a uniform methodology to evaluate potential impacts and mitigation needs based on established criteria by DATE.
    - Criteria and methodology are incorporated into rangewide policy/strategy by DATE.
    - Federal, state, provincial, tribal entities develop policy and associated guidance and the framework (banking/trading system) to enable to implement by DATE.
- Incorporate habitat/population status assessment methodologies when developed by science forum (see Science objective)

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[1] No 'net loss' as envisioned here, does not preclude, indeed embraces, other conservation practices and actions (e.g. CCAs, etc.). It includes the ability to develop and implement other instruments.

Considerations for Implementation:

- Mitigation actions for specific resource recovery projects should be selected from Local Working Group and State Plan projects lists (or at least first screening against such lists)
- Develop aspects of alternative habitat creation (e.g. surrogate leks, etc)
- Ensure reclamation plans and release criteria for reclamation financial assurances include sage-grouse habitat aspects; habitat enhancement practices
- Water availability, water impoundment, water quality (effect on plants, soils, and animals), hydrologic regimes, etc.

Measures of success/monitoring responsibilities:

- Favorable trend in AREA of available habitat and ABUNDANCE of Greater Sage-grouse
- Monitoring systems (as developed elsewhere)

Key participants:

- WAFWA
- Land Grant Universities/Cooperative Extension
- Minerals and Energy Fuels Industry and Organizations
- Natural Resource Consultants (Wildlife, Land Reclamation, Engineering, *etc)*
- Natural Resources Conservation Service
- US Fish and Wildlife Service
- Bureau of Land Management (and Resource Advisory Councils)
- US Forest Service
- US Geological Survey
- State Wildlife Agencies
- Tribes and Tribal Entities
- Local Working Groups
- Certain Conservation Organizations
- (Center for Doing Really Great Things) – Framework Team needs to use consistent terminology for this concept

Milestones/monitoring:

- Monitoring systems (as developed elsewhere)

Objective 1.2: Synthesize existing and develop new technologies and practices that off-set, reduce and/or minimize disturbance associated with resource recovery activities. Disseminate technologies and practices through a central repository.

Implementation actions/timeline:

- Establish and staff (Center for Doing Really Great Things) – Jun06
- Center includes or supports 'repository'
- Center includes quality control/quality assurance system
- Conduct literature and practices review – Dec06
- Identify research and information needs – Jan07
- Develop and implement research programs - Ongoing
- Prepare 'technology transfer' system – Apr07

- Prepare 'best practices manual(s),' standards and guidelines, and related products – Apr07
- Implement technology transfer program – May07
- Evaluate products and update/revise as needed - Ongoing

Measures of success/monitoring responsibilities:

- Favorable trend in AREA of available habitat and ABUNDANCE of Greater Sage-grouse

Key participants:

- WAFWA
- Land Grant Universities/Cooperative Extension
- Minerals and Energy Fuels Industry and Organizations
- Equipment Manufacturers
- Natural Resource Consultants (Wildlife, Land Reclamation, Engineering, *etc)*
- Natural Resources Conservation Service
- US Fish and Wildlife Service
- Bureau of Land Management
- US Forest Service
- US Geological Survey
- State Wildlife Agencies
- Tribes and Tribal Entities
- Local Working Groups
- Certain Conservation Organizations
- Center for Doing Really Great Things

Resources needed:

- Center for Doing Really Great Things
- Appropriate budget
- Appropriate staff and associated resources

Objective 1.3: Develop and implement voluntary incentive programs for mitigation.[2]

Implementation actions/timeline:

- Develop mechanism for evaluation, selection, and establishment of 'core areas' or 'seed sources' (to serve as re-colonization sources) adjacent to or within project areas
- Develop framework and guidance for project 'develop planning'
- Periodic coordination meetings (AMONGST WHOM?) specific to activities/projects (Public and Private Lands)

Measures of success/monitoring responsibilities:

- Favorable trend in AREA of available habitat and ABUNDANCE of Greater Sage-grouse

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[2] This is a transitional instrument until the no 'net loss' system is in place and functional.

Key participants:

- WAFWA
- Federal, State, and Local Governments
- Minerals and Energy Fuels Industry and Organizations
- Equipment Manufacturers
- Natural Resource Consultants (Wildlife, Land Reclamation, Engineering, *etc)*
- Natural Resources Conservation Service
- US Fish and Wildlife Service
- Bureau of Land Management
- US Forest Service
- US Geological Survey
- State Wildlife Agencies
- Tribes and Tribal Entities
- Local Working Groups
- Certain Conservation Organizations
- Center for Doing Really Great Things

Milestones/monitoring:

- Monitoring systems (as developed elsewhere)

ISSUE: HABITAT RESTORATION

Problem Statement

Schroeder et. al. (2004) determined that the pre-settlement distribution of Greater sage-grouse encompassed 1.2 million square kilometers in western North America. The current occupied range of the Greater sage-grouse covers 668,412 square kilometers. This represents approximately 56% of the historically occupied range of the species. The loss of 44% of Greater sage-grouse range and the fragmentation/habitat degradation of remaining range poses great challenges for the perpetuation of the species.

Critical elements of the effort to ensure continued existence of Greater sage-grouse are the *conservation of important habitat and technical capability to reliably re-establish degraded habitat.* This capability includes not only ecologically sound treatment techniques and management practices, but also the production and availability of genetically appropriate plant materials.

Assumptions

The "Habitat Restoration Sub-team" is assuming that we are only to develop strategies, not to implement them. This strategy specifically focuses on the vegetation and soil treatment aspects of re-establishment of degraded, historic Greater sage-grouse range. Proposed resolution of this issue is comprised of several elements including identification of areas suitable and available for rehabilitation, stabilization of the loss of habitat, actual habitat restoration, identification of plant material supply needs (commercial production, genetics, etc.), planting and establishment technology needs, and monitoring and management practices.

A temporal context was established for achievement of the Goals and Objectives: short-term (1-5 years for achievement), mid-term (6-20 years), and long-term (more than 21 years for achievement).

Many of the objectives and recommendations include development of protocols, criteria, and assessment tools. Because of the variability of the ecological attributes across the entire range, many of these recommendations would be best developed and addressed in the 7 subregions of the sagebrush biome to be reflecting this variability.

Because there is substantial work in progress related to this topic, a key first implementation step should include considering and building upon those ongoing efforts. For example, The Great Basing Restoration Initiative (BLM); The Coordinated Intermountain Restoration Project (USGS); assessment and monitoring protocols being applied by BLM, state agencies, and other partners.

We have taken the liberty of identifying a lead point of contact, where it seemed logical or appropriate.

Definitions:

Quality sagebrush habitat that meets the needs of sage-grouse has been described by Connelly et al (2000) in the Guidelines to manage greater sage-grouse and their habitats as:

Season	Vegetative Cover		Vegetation Height		Area containing suitable habitat
	Sagebrush	Grasses /Forbs	Sagebrush	Grasses /Forbs	
Breeding	15-25%	>15%	12-32 inches	>7 inches	>80%
Brood-rearing	10-25%	>15%	12-32 inches	Variable	>40%
Winter (above snow)	10-30%	Variable	10-14 inches	Variable	>80%

All restoration efforts should consider cumulative impacts of planned treatments and unplanned wildfires, as well as the typical time interval needed for suitable habitats to become re-established (>25 years in some habitat types).

Restoration: Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. An ecosystem is recovered or restored when it contains sufficient biotic and abiotic resources to continue its development without further assistance or subsidy (per SER).

SUB-ISSUE: Conifer Encroachment

Problem Statement: The increase in the distribution and density of conifer forests and woodlands (e.g., ponderosa pine, Douglas fir, pinyon pine, and juniper) has been identified as a significant threat to the sagebrush ecosystem. These forests and woodlands have expanded greatly when compared to their distribution >150 yrs ago as a result of ecological changes associated with a decrease in fire frequencies, increased fire suppression, changes in the climatic regime, historical patterns of livestock grazing, and increase in atmospheric CO_2. Although there is uncertainty in the results, modeling the effects of climate change in the Great Basin indicates continued expansion of pinyon-juniper woodlands due to projected increased precipitation. Recent work also indicates that an increasing conifer overstory is associated with an increase in the occurrence of invasive species prior to fire occurrence. Collectively, these changes are defined as encroachment of woodlands and recognized as a significant management concern related to sage grouse in some areas.

Desired Condition: Encroachment of conifer forests and woodlands into existing sagebrush cover types is managed to maintain habitat for greater sage-grouse while sustaining populations of other species of conservation concern.

Challenges to developing a successful strategy (policy, logistics): Reducing the threat posed by conifers to sagebrush is complicated by decreasing fire frequencies, increasing fire suppression, and changes in the climatic regime. Management of conifer encroachment is likely to be effective with an aggressive program of prescribed burning and mechanical treatment. However, use of fire may increase the threat of invasion by cheatgrass and there is often limited public acceptance of prescribed fire. Mechanical control of conifers may be needed to mitigate the threat of sagebrush loss but it is expensive to implement and there is limited public acceptance of some techniques (e.g., chaining). Control of these woody species through harvesting for biofuel for generation of electricity may be effective but the process is currently not economically viable.

Goal 1: (Short term) Identify and map the current extent and future threat of encroachment of conifer species within greater sage-grouse habitats.

Objective 1.1: Develop accurate maps of current distribution and composition of conifer species in proximity to greater sage-grouse habitats by 2009.

Implementation actions/timeline:

- Integrate data resources from the LANDFIRE comprehensive mapping effort currently underway and supported by the USDA Forest Service Fire Lab, USGS and The Nature Conservancy.
- Validate maps with field data
- Develop and incorporate information relating to stand age, canopy cover, snag density, soil site potential, stand density, overstory species.
- Develop definition of old-growth pinyon-juniper and other conifer species
- Identify sites within the range of greater sage-grouse that support old-growth pinyon-juniper, and other conifer species, that provide essential habitat for woodland-associated species of conservation concern.

Measures of success/monitoring responsibilities:

- Development of map by 2009
- Distribution of map and associate metadata (e.g., web and print versions)

Key actors/participants:

- USDA Forest Service
- USDI BLM
- USGS
- National Park Service
- The Nature Conservancy
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- State and Provincial Departments of Land
- State Natural Heritage Programs
- Cooperative Extension

Milestones/monitoring:

- Revision of map to include management actions, wildfire, prescribed burns, insect infestations, rust and disease occurrences, and frost kill by 2012

Resources needed:

- Cost estimate ($50,000)

Objective 1.2: (Short term) Develop, apply, and evaluate models to provide spatial estimates of risk of encroachment of conifer species by 2010.

Implementation actions/timeline:

- Determine the effectiveness of the Suring et. al. (2005) model to estimate the risk of pinyon-juniper displacement of sagebrush and modify, as necessary by 2008.

- Identify existing land cover maps that portray the distribution of conifer species in sagebrush habitats throughout the range of greater sage-grouse by 2007.
- Apply the revised Suring et al. (2005) model throughout the range of greater sage-grouse by 2008.
- Evaluate the effects of drought and insects on conifer species in sagebrush habitats throughout the range of greater sage-grouse.

Measures of success/monitoring responsibilities:
- Maps of estimated risk of encroachment in use by 2008

Key actors/participants:
- USDI BLM
- USDA Forest Service
- USGS
- Cooperative Extension
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- State and Provincial Departments of Land

Milestones/monitoring:
- Revise models periodically based on information collected from ongoing or recently completed management projects and/or research

Resources needed:
- Based on mapping, determine projected treatment needs, timelines, resources needed and implementation costs

Goal 2: In order to support defensible and well-informed resource management decisions to benefit sage grouse, synthesize information on the habitat relationships of wildlife associated with pinyon-juniper and other conifers (all phases) which have invaded sagebrush habitats.

Objective 2.1: (Short term) Initiate a comprehensive synthesis of habitat relationships for plant and animal species of concern (e.g., ferruginous hawk, gray vireo, juniper titmouse, pinyon jay) to define high-quality habitat and identify species needs associated with conifer encroachment by 2008.

Implementation actions/timeline:
- Review best available data and information on habitat needs of aforementioned species of concern
- Refer to map product from Goal #1, Objective #1 to determine the most likely areas in which the species of concern would inhabit and designate as potential suitable habitat
- Amend map to include this information
- Review site records or PIF inventories for those areas
- Conduct physical survey and inventory if little historic record is available

Measures of success/monitoring responsibilities:
- Completion of summary document within two years of initiation

Key actors/participants:
- Forest Service
- Bureau of Land Management
- USGS Biological Resources Discipline
- Universities

Milestones/monitoring:
- Completion of a map of conifer encroachment in sage-grouse habitats with areas identified as potentially suitable for species of concern
- Physical survey and inventory completed to ground truth model
- Wide distribution of information

Resources needed:
- Approximately $75,000 for the two year project

Objective 2.2: (Short term) Based on information gaps identified under objective 1, initiate research and/or monitoring to fill these gaps about species of concern by 2010.

Key actors/participants:
- Forest Service
- Bureau of Land Management
- USGS Biological Resources Discipline
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- Universities
- Partners In Flight
- Audubon

Objective 2.3: (Short term) Incorporate the results of these studies into plans (e.g. LWGs, LUPs, statewide plans, NEPA analyses) to manage conifer encroachment into greater sage-grouse habitat.

Implementation actions/timeline:
- Ensure that information is disseminated to LWGs, state resource agencies, and federal land management agencies
- Application of findings to subsequent projects' NEPA analyses

Measures of success/monitoring responsibilities:
- Incorporation of findings into LUPs and plan amendments

Key actors/participants:
- USDI BLM
- USDA Forest Service
- USGS
- State and Provincial Wildlife Management Agencies
- Local Working Groups

Objective 2.4: (Short term): Initiate research and/or monitoring to understand the effects of management actions on the species of concern and their habitats by 2010

Implementation actions/timeline:

- Carefully identify species of concern by ecoregion and assess quantifiable and qualifiable habitat attributes

Key actors/participants:

- Forest Service
- Bureau of Land Management
- USGS Biological Resources Discipline
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- Universities
- Natural Heritage Programs
- Partners In Flight
- Audubon

Resources needed:

- Approximately $150,000 to complete four year study

Goal 3: Develop and implement control measures for encroaching conifer species within greater sage-grouse habitat.

Objective #3.1: (Short term) Identify by 2010 sites of conifer encroachment that still have an understory of sagebrush and native perennial species and treat (this objective may need some work since we said in our goal statement that we would "develop **and implement** control measures"; assign a high priority for treatment since they have higher likelihood of successful rehabilitation than areas where the sagebrush understory has been depleted.

Implementation actions/timeline:
- Implementation of mechanical treatments
- Implement hand thinning using chainsaws in areas where slopes limit mechanical operation and in cultural or wildlife sensitive habitats
- Implementation of prescribed burns in high elevation, mountain sagebrush sites

Measures of success/monitoring responsibilities:
- Response of vegetation to control measures

Key actors/participants:
- USDI BLM
- USDA Forest Service
- USFWS
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- LWGs

Milestones/monitoring:
- 150,000 – 200,000 acres of greater sage-grouse habitat are crossing the woodland encroachment threshold annually; this should be reduced to 0.

Resources needed:
- $100,000,000 to effectively treat 200,000 acres of woodland encroached sagebrush habitats at $500/acre

Objective 3.2: (Short-term) Identify by 2010 former sagebrush sites with a conifer overstory that have a depleted sagebrush and native perennial herbaceous understory; develop specific restoration plans that maximize removal of encroaching species and recovery of sagebrush and associated understory species.

Implementation actions/timeline:
- Implement treatments in a study plot design using mechanical, hand, or prescribed burning in appropriate sites
- Consider seeding random plots after project is completed with appropriate number of control plots
- Rest treated area from livestock grazing for an appropriate period of time

Measures of success/monitoring responsibilities:

- Development of effective treatment methods to deal with woodland invaded sagebrush sites in this condition

Key actors/participants:

- USDA Forest Service
- USDI BLM
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies

Objective 3.3: (Mid term) Initiate research to identify effective integrated treatment methods (e.g., fire, mechanical treatment, herbicides) and apply those methods where appropriate by 2015.

Implementation actions/timeline:

- Measures of success/monitoring responsibilities
- Key actors/participants
- Milestones/monitoring
- Resources needed

Objective 4.4: (Short term) Based on an evaluation of current practices and guidance, refine and implement guidelines for reducing negative impacts of conifer control activities on greater sage-grouse populations and their habitats by 2007.

Implementation actions/timeline:

- Do not conduct any vegetation treatments during lekking, nesting and early-brood rearing periods when sage-grouse are present
- Implement treatment plans for control of conifer species that ensure control of cheatgrass and other invasive weed species in greater sage-grouse habitats.
- Ensure adequate measures are included in restoration plans to replace the cheatgrass understory with perennial species using approved reseeding strategies.
- Discourage the use of prescribed fire in the elevational “gray” area between Wyoming big sagebrush (*wyomingensis*) and mountain big sagebrush (*vaseyana*).

Goal 4: Develop and implement a long-term monitoring program designed to evaluate the effectiveness of methods to control conifer encroachment into greater sage-grouse habitat.

Objective 4.1: (Long term) Develop common protocols and standardized procedures by 2008 for recording treatments and results of monitoring efforts.

Implementation actions/timeline:

- Inventory current ongoing protocols, procedures and treatment methodologies
- Develop additional protocols as necessary
- Evaluate monitoring protocols currently in use for conifer removal
- Publish reports describing effective practices

Measures of success/monitoring responsibilities:

- Key actors/participants
- Milestones/monitoring
- Resources needed

Objective 4.2: (Short term) Develop a rangewide common database by 2007 where managers and researchers can record completed and ongoing pinyon, juniper and other coniferous species removal projects.

Implementation actions/timeline:

- Inventory current databases
- Assess whether or not this task will be appropriate for the Project Locator Database
- Develop a database within SAGEMAP if not applicable to Project Locator Database
- Market this tool to agencies, local working groups, and interested publics
- Develop a synopsis/summary of results that may be retrieved and viewed via a user-friendly process

Measures of success/monitoring responsibilities:

- Development of database

Key actors/participants:

- USGS
- USDI BLM
- USDA Forest Service
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- Local Working Groups

Milestones/monitoring:

- Track and evaluate the number of times the database is accessed

Goal 5: Integrate and coordinate conifer control efforts within greater sage-grouse habitat to increase effectiveness.

Objective 5.1: (Short term) Develop partnerships among regional public and private land management entities by 2008 to develop and implement identified objectives.

Implementation actions/timeline:

- Implement or amend existing MOU or MOA among agencies and other interested organizations to address the management of conifer species in sagebrush habitats.
- Hold a workshop that includes professionals from various federal and state agencies (especially fuels management personnel), conservation organizations, counties, as well as interested landowners dealing with encroachment issues to encourage coordinated efforts.
- Solicit involvement of local land management specialists, private landowners, wildlife biologists, and range ecologists to share knowledge and responsibilities on conifer encroachment issues.

Measures of success/monitoring responsibilities:

- Successful completion of multiple projects across jurisdictional boundaries
- Cost sharing to fund projects

Key actors/participants:

- USDI BLM
- USDA Forest Service
- National Park Service
- USFWS
- State and Provincial Wildlife Management Agencies
- State and Provincial Forestry Agencies
- State and Provincial Departments of Land
- State Natural Heritage Programs
- The Nature Conservancy
- Sierra Club
- National Audubon Society
- Intermountain West Joint Venture
- Cooperative Extension

Objective 5.2: (Short term) Develop and conduct integrated training on the management of conifer encroachment by 2008 (including mechanisms for encroachment, ecological conditions that facilitate encroachment, and methods of treating encroachments).

Implementation actions/timeline:

- Develop agenda
- Identification of experts needed to successfully implement workshop
- Identification of location and venue to hold workshop

Measures of success/monitoring responsibilities

- Participation by agency specialists

Key actors/participants:

- State and federal agencies
- Local experiment stations
- Local (county) weed districts

Milestones/monitoring:

- Implement at least one workshop every two years

Goal 6: Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.

Objective 6.1 (Mid term): Develop incentives by 2015 for private contractors to remove encroaching conifers to accomplish sage grouse habitat improvement objectives across all land ownerships

Implementation actions/timeline:

- Explore/create markets for resulting products such as chips for composting/landscaping or electric power co-generation

Key actors/participants:

- State and federal agencies
- Local experiment stations
- Local (county) weed districts
- Industry

Objective 6.2: (Mid term): Expand and promote incentives for conifer removal on private lands for improving sage grouse habitat

Implementation actions;

- Utilize and increase the scope and funding of existing Farm Bill authorities and budgets toward this objective

Objective 6.3: Increase availability of equipment (such as masticators, grinders, chippers) within agencies and to operators by 2009 (see subissue strategy related to planting expertise for specifics).

Objective 6.4: (Short, Mid, and Long term): Promote programmatic integration of wildland fire & fuels management planning and implementation with conifer treatment activities at local, regional, and rangewide scales

Implementation actions:

- Develop and implement interagency policies to require integration
- Designate liaison positions to assure communication & coordination between fire organization and resources goals
- Conduct coordinated plans which address fire& fuels management activities integrated with sage-grouse habitat restoration goals

Objective 6.5: (Short term): Improve the ability by 2008 of federal agencies to meet their mandates for environmental and archaeological reviews of sites proposed for conifer removal in a timely manner.

Implementation actions/timeline:

- Pursue activities such as block cultural inventories and programmatic NEPA analyses to streamline decisions and actions
- Pursue actions to facilitate streamlined and programmatic Section 7 consultations

Goal 7: Streamline procurement and contracting procedures to facilitate timely and effective interagency conifer treatments and other restoration activities

Objective 7.1: Evaluate and modify existing procedures to streamline procurement and contracting and to facilitate seamless interagency programs

Objective 7.2: Increase procurement and contracting staffing

Objective 7.3: Increase trained field staff to serve as contract administrators, inspectors, and contracting officer representatives (COR)

SUB-ISSUE 2: Range-wide habitat restoration assessment & planning

GOAL 1: Establish a realistic extent (acres and/or percentage of historic) of range that can be restored to support the needs of sage-grouse by December 2006.

Objective 1.1 (short-term): Standardize a protocol for characterizing the restoration potential of particular habitats that have been degraded.

Implementation Actions:

- Review Existing Frameworks to Assist in Making Sensitive Species Habitat Assessments (see BLM-Administered Public Lands in Idaho, Sather-Blair et. al. 2000)(see Owyhee Uplands Pilot Project; Utah Restoration Initiative)
- Determine vegetation classification map that will be used as a base map
- Develop assessment rules and determine the tools that are available:
  - determine the appropriate scale for assessing restoration potential
  - determine if restoration can be accomplished via management changes OR if active intervention is necessary
- Locate and develop a pilot program for rapid assessment of restoration potential with some level of ground-trusting integrated into design. Program should include areas which are representative of the variability of ecological sites across the range.
- Based on pilot program outcomes, develop and apply rapid assessment methods across the range.

Measures of Success:

- Agreement on vegetation classification map
- Completion of pilot project

Key Participants:

- Bureau of Land Management
- USFS
- USGS
- NRCS

Objective 1.2 (short-term): Determine area of historic range (acres) that is "unlikely" to be restored without substantial mechanical involvement or cost by 12/2006. Do this in consort with LWGs.

Implementation Actions:

- Develop criteria to determine how an area is considered "unlikely" to be restored and what is cost prohibitive.
- Review work of Wisdom et. al. to evaluate work that has already been completed (Wisdom, M.J., L.H. Suring, M.M. Rowland, R.J. Tausch, R.F. Miller, L. Schuek, C. Wolff Meinke, S.T. Knick, B.C. Wales. 2003. A prototype regional assessment of habitats for species of conservation concern in the Great Basin Ecoregion and state of Nevada. Version 1.1, September 2003. Unpublished report. USDA Forest Service, Pacific Northwest Research Station. La Grande, OR).
- Review Sagemap and Sagestitch for related work.

- Conduct spatial analysis of habitats that have been lost to the following various factors and are unlikely to be restored:

  Urban/Suburban Development
  Agriculture
  Infrastracture
  Water Impoundment
  Wildfire
  Highways/paved surfaces
  Transmission Lines/Pipelines
  Mining (active, reclaimed)
  Cheatgrass/Annual Invasive Dominated Sites

- Define scope and scale of map.
- Develop a map of those areas in which restoration is not feasible.

Measures of Success:
- Completion of Map and associated documents (including, but not limited to, a synopsis of area lost by causative factor)
- Provide map as an online resource.

Key Participants:
- USGS, BLM, USFS, NRCS
- State Wildlife Agencies & agencies with automated resources data
- LWGs

Time Frame:
- Initiate Draft Map and metadata by 6/2006
- Complete Draft Map and associated documentation by 10/2006
- Apply feedback and revise map by 12/2007 (map is dynamic and a work in progress)

Resources Needed:
- Conservation Assessment
- Sagemap
- Wisdom et. al.
- BLM Mining Inventory Maps

Objective 1.3 (short-term): Determine the number of acres or percentage of range that is likely to be restored with adjustments in management, limited mechanical involvement, and/or reasonable cost.

Implementation Actions:
- Develop criteria to determine how an area is considered “likely” to be restored and what reasonable costs are (per acre or other basis).
  - Evaluate if current management practices are conducive to maintenance or restoration of desired habitat conditions;
  - Determine if restoration can be accomplished via management changes OR if active intervention is necessary
- Review Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho (Sather-Blair et. al. 2000).
- Conduct spatial analysis of habitats that have been lost to the following various factors and are likely to be restored:

Wildfire	Prescribed Fire
Agriculture	Mining
Pinyon/Juniper Expansion	

- Define scope and scale of map.
- Develop a map of those areas in which restoration is feasible
- Compare map with results of VegSpec (CIRP)

Measures of Success:

- Completion of Map and associated documents (including, but not limited to, a synopsis of area lost by causative factor)

Key Participants:

- USGS, BLM, USFS, NRCS
- State Wildlife Agencies

Time Frame:

- Initiate Draft Map and metadata by 6/2006
- Complete Draft Map and associated documentation by 10/2006
- Apply feedback and revise map by 12/2007 (map is dynamic and a work in progress)

Resources Needed:

- Completion of VegSpec – a computer program that is a restoration expert system (CIRP)

GOAL 2: Ensure that restoration techniques are ecologically sound and attainable.

Objective 2.1 (short-term): Determine desired future condition: What attributes are we seeking

Implementation Actions:

- Clarify and define desired future habitat conditions based on 7 subregions and life cycle requirements of sage grouse.
- Using best available science & technology, develop and disseminate best practices about ecologically sound methods. These may need to be defined based on a more regional or state-level basis because there is ecological variability across the range.
- Develop and implement monitoring and evaluation to determine if practices are meeting desired condition objectives

Key Participants:

- Management agencies: state & federal & local
- Scientific community: USGS, Academic institutions

Objective 2.2 (short-term): Establish a user guide to restoring sagebrush habitats based on information currently available (is this CIRP?).

Implementation Actions:
- Select a group of experts to write the document
- Consult the Guidelines to manage sage-grouse populations and their habitat (Connelly et. al. 2004) for recommendations regarding sage-grouse habitat restoration.

Measures of Success:
- Identification and progress towards transitioning degraded sites into quality sagebrush habitats.

Key Participants:
- Federal Land Management Agencies
- State Wildlife Agencies
- Provincial Wildlife Agencies
- Consulting Firms

Time Frame:
- Complete draft document by 12/2007
- Complete final document by 6/2008

Objective 2.3 (long-term): Support technical assistance and workshops that demonstrate restoration efforts that worked and did not work.

Implementation Actions:
- Develop a cadre of dedicated restoration specialists to conduct trainings and on-site technical assistance on restoration methods. This cadre should be focused and organized based on 7 subregions.
- Conduct at least one workshop every two years to discuss and portray results of sagebrush habitat restoration efforts throughout Greater Sage-grouse range
- Develop and distribute on-line tools and training modules

Measures of Success:
- Were workshops held or not?
- Keep a roster of attendees
- Development of proceedings document following workshops

Key Participants:
- Management agencies
- University extension
- NGOs
- Academic institutions

Objective 2.4 (mid-term): Establish a research and monitoring program to evaluate the effectiveness of treatments and management adjustments in meeting restoration goals; include clearinghouse for distributing knowledge from monitoring

Implementation Actions:

- Compile and assess current monitoring activities
- Design and implement controlled experiments/treatments to test the effectiveness of those treatment methods in accomplishing restoration goals for different habitats
- Establish common sampling, methods, protocols, metrics, (reference table Connelly et al) for monitoring effectiveness of restoration treatments and management adjustments at local, regional, and range-wide scales.
- Sampling of different areas reflecting life cycle requirements (nesting, brood-rearing, wintering…etc.)
- Compile and communicate results of research and monitoring to all stakeholders

Key Participants:

- NGOs: Audubon, Partners in Flight,
- Management Agencies: BLM, State, USFS
- USGS
- University Extension
- LWGs

GOAL 3: Restore number of acres or percentage of range from Goal #1 above by the year 2030 (or 2040?).

Objective 3.1 (short-term): Determine a prioritized list of sites from the exercise in Goal #1 to restore.

Implementation Actions:

- Establish a criteria to determine areas that could once again provide key sag-grouse habitats
- Review map of habitat that is "likely" to be restored and apply criteria
- Develop prioritized list by 7 subregions.

Key Participants:

- Framework Team
- Management agencies
- LWGs
- USGS, other science partners

Objective 3.2 (short term): In consort with LWGs, develop restoration work plan(s) which establishes actions to implement restoration in priority areas. Include, as appropriate, NEPA compliance.

Implementation Actions:

- Establish and complete template for work plans, including desired future condition objectives, treatment methods, seed mix and quantity, equipment and resources needed, post-treatment management.
- Aggregate at the 7 subregions and range-wide levels the seed and equipment needs to identify capacity shortcomings.
- Develop multi-year budgets to implement restoration actions.

Key Participants:

- Management Agencies & Private landowners
- LWGs

Objective 3.3 (long-term): Restore degraded sites on public, private and tribal lands where feasible

Implementation Actions:

- Over the next 40 years, implement pinyon and juniper removal or thinning projects in strategic locations to protect sage-grouse habitats and improve habitat conditions.
- Conduct treatments in sagebrush habitats with canopy cover values outside the range necessary to sustain sage-grouse
- Improve understory conditions in sagebrush habitats via treatments to enhance native perennial grasses and forb growth
- Identify private lands with key sage-grouse habitats
- Utilize existing and/or future compensation and incentive programs to restore or protect sage-grouse habitats.
- Monitor results of restoration efforts
- Make private lands assistance programs more user friendly (simplify proposal process).
- Endeavor to coordinate and target restoration efforts across state, provincial and jurisdictional boundaries.
- Develop and apply post-treatment management guidelines that support restoration goals and objectives.

Measures of Success:

- Post-treatment management results in progress toward identified restoration goals/objectives and desired habitat condition.

Key Participants:

NRCS, Farm Bureau
State Wildlife Agencies
University Extension Agents

Objective 3.4 (long-term): Optimize post-fire restoration efforts so that goals/objectives include restoring sagebrush/sage-grouse habitat needs.

Implementation Actions:

- Identify and prioritize habitat conditions for rehabilitation by 2008 (e.g., initially focus on sites needing rehabilitation that are adjacent to functioning habitat) see Objective 3.1.
- Determine the potential natural vegetation associated with sites to be rehabilitated to ensure that long-term wildfire rehabilitation objectives are appropriate.
- Establish long-term objectives for seeding and replanting burned areas by 2008 that are compatible with the habitat needs of greater sage-grouse.
- Re-vegetate burned sites in greater sage-grouse habitat within one year unless natural recovery of the native plant community is expected. Give areas disturbed by heavy equipment priority for rehabilitation.
- Pursue opportunities for forage reserves to accommodate livestock operators during implementation of rehabilitation and restoration activities
- Complete programmatic EA for the use of pre-emergent herbicides (e.g., Oust and Plateau) to help retard cheatgrass germination.
- Continue to monitor restoration efforts for success and convey those results into widely distributed reports
- Garner funding support for sage-grouse/sagebrush related restoration projects from a range-wide standpoint.

Measures of Success:

- Authorization for use of pre-emergent herbicides to control invasive annual exotic grass species on federal lands.
- Improvement in funding availability.
- Secured and banked off-site mitigation funds

Key actors/participants:

- BLM, USFS, USFWS
- NRCS
- Native American Tribes
- University Cooperative Extension

Objective 3.5 (Short-term): Establish post-rehabilitation treatment management guidelines for other resources uses by 2008 that will ensure successful regeneration of habitat for greater sage-grouse (e.g., provide for a minimum of two growing seasons of rest from grazing by domestic livestock unless there are specific restoration objectives using livestock).

Objective 3.6 (Short-term): Evaluate current agency policies for fire rehabilitation and modify as needed in support of restoration actions (e.g. invasives/weed control, diverse seed mix)

GOAL 4: Develop and Implement Coordinated and Targeted (enforcement and restoration) restoration efforts across jurisdictional or state boundaries [*Cross Reference with Work Group #3: Integration and coordination across range and jurisdictions, Sub-Issue 4 (Coordinated restoration on broad scale)*]

Objective 4.1: Based on work plan described above, coordinate plans across state and regional boundaries.

Implementation Actions
Measures of Success
Key Actors/Participants
Time Frame

GOAL 5: Develop and implement a long-term monitoring program designed to evaluate the response of habitat to wildfire, prescribed burns, and mechanical fuel reduction treatments.

Objective 5.1: Develop common protocols and standardized procedures by 2008 for recording treatments and results of monitoring efforts.

- Implementation actions/timeline
- Measures of success/monitoring responsibilities
- Key actors/participants
- Milestones/monitoring
- Resources needed

Objective 5.2: Develop a common database by 2007 where managers and researchers can record completed and ongoing fire and fuel management and restoration projects.

- Implementation actions/timeline
  - Develop a database within SAGEMAP
  - Develop and maintain cumulative records for all vegetation treatments to determine and evaluate site specific and cumulative impacts to greater sage-grouse habitats and identify best management practices for successful vegetation treatments.
- Measures of success/monitoring responsibilities
- Key actors/participants
- Milestones/monitoring
- Resources needed

Objective 5.3: Develop common protocols and standardized procedures by 2008 to conduct post-fire reviews of management plans and actions to revise operating procedures, when necessary.

- Implementation actions/timeline
- Measures of success/monitoring responsibilities
- Key actors/participants
- Milestones/monitoring
- Resources needed

SUB-ISSUE 3: Native Seed Availability

Problem Statement: Site-adapted species are not available in the quantities needed to meet desired restoration program goals. We are lacking the technology and capacity to produce/store/plant items in quantity and at the times needed.

Goal 1: Develop a regional assemblage of species that are site adapted and available in quantities needed to implement restoration priority projects/actions. Increase the availability of seed and restoration methods/expertise to restore plant COMMUNITIES, not just individual plant species

Objective 1 – Research: Establish regionally-based research programs to develop procedures to grow and produce the desired seed species (crosswalk with science group).

Implementation Actions:
- Assess current abilities to propagate and produce the species identified above.
- Set priorities for developing propagation procedures.
- Identify existing partners and programs to "re-direct" existing resources & programs
- Develop proposal/strategy defining what needs to be done to develop research program: build upon CIRP, GBRI, and Report to Congress (2002) by BLM & USFS.
- Generate funding to support the research program.

Key Participants:
- NRCS Plant Materials Centers
- USDA Research Centers
- BLM & USFS Native Plant funding programs
- Commercial seed producers (state seed associations)
- Private restoration companies/specialists
- Energy & minerals companies (have an interest in developing capabilities)
- USGS
- Universities

Resources Needed:
- Funding for research and support infrastructure (nursery facilities, controlled conditions, etc.)

Objective 2 – Define specific species and quantities needed: determine and develop individual species that will be required and the amount of seed to restore sagebrush habitats identified as having the potential for restoration and the amounts of seed needed on an annual basis (under the previous habitat restoration goal).(not just native species, includes site-adapted non-native species)

Implementation Actions:
- Quantify amount of seed needed, where, & when
- Develop common principles and practices for use of non-native species: acknowledge risks and benefits of using non-native species; place emphasis on accomplishing community restoration goals, and applying use of non-

native species toward those goals. Monitor and evaluate the effects of the use of non-native.
- Delineate "regions" (sub-units of the greater sage grouse range) for implementing restoration actions based on common ecological attributes such as soils, plant communities, climatic variables, types of disturbances (e.g. fire). This will facilitate more focused, locally-based, species-specific strategies. Identify species needed to accomplish restoration goals.
- Based on 3&4 set priorities for propagation and production based on a set of criteria, including: a) the amount of seed needed; b) potential for propagation and production; c) importance to the habitat and sage grouse, etc.
- Determine and communicate projected needs/demand for seed with the goal of providing a reliable market for commercial producers.

Key Participants:
- Agencies: BLM, USFS, State Agencies
- Extension Service
- USGS/NRCS/Scientific Community: delineate regions
- NRCS
- Nature Conservancy
- Native Plant Societies
- Universities
- Professional Societies: SRM, Wildlife Society, SER
- Private restoration companies & industry

Objective 3 – Developing and Facilitating Commercially Available Seed: Develop programs to assure commercial production and availability of individual species (see Idaho seed strategy; SEAM) (surface environment and mining strategy) in the quantities needed to implement restoration projects

Implementation Actions:
- Establish coordinating/oversight committee of agencies and seed producers to oversee and coordinate and communicate seed production needs and mechanisms to meet those needs.
- Review and broaden the Utah Restoration Initiative model for identifying, planning, scheduling, and planning restoration projects and seed needs.
- Develop and provide to agencies the species recommended for specific sites by communities, location, and climatic conditions. Provide lists of recommended species to agencies by site condition.
- Schedule restoration projects to identify required species and allow time to produce these species.
- Encourage seed producers to begin production of priority species
- Identify and manage wildland sites to produce specific species in the wildland context
- Provide lists and seed quantities to seed associations and seed producers to encourage commercial seed production
- Establish cooperative procurement among agencies for seed procurement: develop and implement a model similar to the Utah Restoration Initiative for coordinating and communicating seed needs to producers
- Develop contracts for producing desired site-adapted species
- Collect site-adapted seeds and provide to state seed associations for production

Key Participants:

- Federal, state, and private land owners/managers
- State seed growers and state seed associations
- University extension

Objective 4 – Warehousing and Distribution: Develop regional seed warehousing or means to supply seed to cooperating users.

Implementation Actions:

- Use oversight/coordinating committee to identify, prioritize, and coordinate seed production and distribution
- Based on previously-identified steps, determine projected demand for seed on a statewide and regional basis.
- Determine where the most effective locations would be for seed warehousing and distribution
- Communicate and coordinate through oversight group and cooperative partnerships with commercial seed producers to establish warehouses and distribution centers

Key Participants:

Same as above

SUB-ISSUE 4: Inadequate Planting Expertise & Capacity to Accomplish Range-wide Restoration Goals

Problem Statement:
While there is some planting expertise available, knowledge and capacity are inadequate to meet rangewide restoration goals in the following ways:

1) knowledge about methods in the full range of habitat types and conditions, including a) enhancement of degraded habitats where the sagebrush component still exists but understory and desired composition are lacking; b) habitats where sagebrush and other desired components are entirely lost (converted beyond the threshold of recovery without active intervention).
2) not enough people with knowledge & expertise to plan and implement treatments at the scale necessary to accomplish restoration goals at the rangewide scale (as determined under the rangewide restoration Goal 3, Objectives 3.1 and 3.2)
3) lack of sufficient quantity of specialized seeding equipment (e.g. drills with depth bands, interseedeers, etc.)
4) technology and information transfer capacity and infrastructure are inadequate to facilitate rangewide information sharing and timely feedback on successes and failures (see Science & Data Management Sub-Issues 1 &2)

Desired Condition:
Robust knowledge and resources (people & equipment) are available at the local, regional, and rangewide scales to plan and implement proactive and effective restoration in a seamless manner across the landscape

Goal 1: Plan and conduct research to increase knowledge about restoration methods and their effects in the full range of habitat types and degrees of disturbance.

Objective 1.1: Produce and maintain synthesis of research and information about restoration methods and effects

Objective 1.2: Implement monitoring, research, and development program to test, refine, and apply improved planting techniques

Objective 1.3: Design restoration projects to incorporate research questions

Goal 2: Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.

Objective 2.1: Inventory & assess current human resources knowledge & capability (who knows what & where are they located) & identify gaps and priority needs

Objective 2.2: Develop dedicated cadres of restoration specialists at a regional level (consider 7 subregions) to provide on-the-ground technical assistance for planning, implementation, and monitoring.

Objective 2.3: Provide training to field-level resource agency personnel & partners on current restoration ecology, methods & monitoring techniques

Objective 2.4: Develop university & vocational programs to train professional restoration specialists as well as on-the-ground practitioners

Objective 2.5: Promote private sector capability to provide contract services

Goal 3: Obtain and manage specialized equipment to meet restoration goals in strategic locations

Objective 3.1: Inventory current specialized equipment and compare with projected needs (consider 7 subregions)
Objective 3.2: Acquire equipment to address shortages &/or promote private sector inventory & availability

Objective 3.3: In coordination with the establishment of regional seed warehousing, co-locate equipment in selected strategic locations based on projected restoration project needs
Objective 3.4: Implement monitoring, research, and development program to test, refine, and apply improved & durable equipment

Goal 4: Refine and develop mechanism(s) to facilitate rangewide information sharing in a timely and user-friendly manner.

Objective 4.1: Produce tools which make best available knowledge accessible and responsive to needs throughout the range (e.g. website, newsletter, symposia, workshops, on-line training, blog, training sessions)

Objective 4.2: Establish a central information clearinghouse for people seeking current knowledge about sage grouse habitat restoration from soup to nuts

Objective4. 3: Utilize regional restoration cadres for technical assistance & technology transfer

Sub-Issue 5: Fire

PROBLEM STATEMENT: Throughout its range, sagebrush occurs on a dynamic landscape shaped by variation in soils, topography, climate, and fire frequency. These dynamics resulted in the evolution of numerous sagebrush taxa that have strikingly different responses to fire. For example, Wyoming big sagebrush communities had typical historical fire return intervals of 80 – 150 yrs, while mountain big sagebrush communities may experience return intervals as short as 15 –20 yrs. Natural fire return intervals in basin big sagebrush are intermittent between mountain big sagebrush and Wyoming big sagebrush. Consequently, natural fire regimes in the sagebrush ecosystem are highly variable, ranging in frequency from 15—150 years, with a specific frequency for each community. Vegetation structure and composition in the sagebrush ecosystem have undergone major changes since European settlement. These changes are due, in part, to changes in frequency, size, and severity of wildfires resulting from changes in the climatic regime, historical patterns of livestock grazing, and subsequent invasion by exotic plant species.

Historically, fires in the sagebrush ecosystem typically produced a mosaic of burned and unburned areas as a result of the distribution of soils, topography, moisture conditions, and fuels. Sagebrush plants generally reseeded in burned sites from adjacent unburned sites because patch size of burned areas was small, allowing for adequate dispersal of sagebrush seeds from unburned plants. Under current, altered fire regimes, natural re-establishment of sagebrush after burning (especially basin big sagebrush and Wyoming big sagebrush) is unlikely. As a result, fire management (i.e., prescribed fire and wildfire suppression) must be carefully planned and implemented. Active management (e.g., seeding, protection from ungulate grazing) is often required to facilitate reestablishment of sagebrush after wildfires.

Goal 1: All local, state, and federal agencies and private entities approach management of wildland fire and fuels management in greater sage-grouse habitat in a coordinated fashion.

Objective 1.1: Develop and implement integrated policy and plans for the protection and rehabilitation of greater sage-grouse habitat by 2008.

Implementation actions/timeline:
- Develop a process by 2008 with policy support and decision criteria to set priorities for protection of habitat for greater sage-grouse vs. non-significant structures and other developments (e.g., recognize the tradeoffs associated with rehabilitating critical greater sage-grouse habitat or rebuilding structures).
- Update agency plans, such as land use plans and fire management plans to place high priority on protection and restoration of sage grouse habitat

Measures of success/monitoring responsibilities:
- Compilation of policy by 2007

Milestones/monitoring
- Is the integrated policy working/where are there problems

Objective 1.2: Broaden partnerships among regional public and private land management entities by 2008 to develop and implement fire management strategies which benefit sage grouse.

Implementation actions/timeline

- Implement or modify MOU or MOA among agencies and other interested organizations to address the management of fire in sagebrush habitats.
- Hold a workshop that includes professionals from various federal and state agencies (especially fuels management personnel), conservation organizations, counties, rural fire departments as well as interested landowners dealing with fire management issues to encourage coordinated efforts.
- Solicit involvement of local land management specialists, private landowners, wildlife biologists, fire ecologists, and range ecologists to share knowledge and responsibilities on fire management issues.

Key actors/participants

- USDI BLM
- USDA Forest Service
- National Park Service
- USFWS
- State & Provincial Wildlife Agencies
- State Forestry & Lands Agencies
- State Natural Heritage Programs
- Local fire protection districts & rural fire departments
- The Nature Conservancy
- Sierra Club
- National Audubon Society
- Intermountain West Joint Venture
- Cooperative Extension

Goal 2: Place top priority on containing and suppressing wildfires in important greater sage-grouse habitats

Objective 2.1: Develop criteria for determining where and how to contain and suppress wildfire

Implementation actions

- Complete R-value (Sather-Blair 2000) map for Great Basin
- Determine where uncharacteristic wildfires result in adverse impacts (e.g. invasives species, reduced fire return intervals)
- Determine where further loss of sage grouse habitat is unacceptable
- Establish priority habitat restoration sites

Objective 2.2: Develop and apply area-specific fire suppression plans for greater sage-grouse habitats (including location of fire camps, staging areas, and helibases).

Implementation actions/timeline:
- Plans developed for ecoregions throughout the range of greater sage-grouse

Milestones/monitoring:
- Review and revise fire suppression plans annually to incorporate new information on sage-grouse habitat distribution and occurrence

Objective 2.3: Ensure a coordinated county, fire district, and federal response to wildfires in these areas.

Key actors/participants:
- NIFC

Objective 2.4: Provide agencies with adequate resources and equipment to control wildfires (e.g., tankers, aerial support).

Implementation actions/timeline:
- Assess current equipment inventories
- Develop a needs list by BLM District of USFS Ranger District by 2008
- Develop a ten year feasibility profile to obtain necessary equipment

Measures of success/monitoring responsibilities
- Completion of inventory by December 31, 2007
- Completion of needs list by June 30, 2008

Key actors/participants
- USDI BLM
- USDA Forest Service
- State and Provincial Forestry Agencies
- Contractors

Resources needed
- Dedicated personnel

Goal 4: Manage habitat mosaics and fuels in greater sage-grouse habitat to improve habitat and reduce the possibility of damaging wildfires.

Objective 4.1: Describe desired habitat conditions for greater sage-grouse by 2007 to provide a template for management actions. *Please see Habitat Conservation and Restoration Sub-issue 1 Objectives 1 & 2.*

Objective 4.2: Develop criteria for managing fuels in greater sage-grouse habitat by 2007.

Objective 4.3: Promote programmatic integration of sage grouse habitat protection and improvement into fuels management planning and implementation at local, regional, and rangewide scales

Implementation actions:
- Develop and implement interagency policies to require integration
- Designate liaison positions to assure communication & coordination between fire organization and resources goals
- Conduct coordinated plans which address fire& fuels management activities integrated with sage-grouse habitat restoration goals

Objective 4.4: Use prescribed burns, chemicals, and mechanical treatments at an appropriate scale to improve sage grouse habitat and to reduce the potential for catastrophic wildfires in and adjacent to greater sage-grouse habitat by 2010.

Implementation actions/timeline:
- Establish plans for the size of treatment based on existing conditions (e.g., sagebrush species present, topography, previous fire history, type and distribution of seasonal habitat), cumulative areas of sagebrush modification, and potential of the proposed site.
- Maintain pockets of unburned *Artemisia* within fire perimeters to provide natural seed sources.
- Ensure that the risk of cheatgrass or other invasive weeds is minimal and that there is a low risk of reducing critical features of sage-grouse habitat as a result of prescribed burns.
- Support an enact the preferred alternative in the BLM's programmatic EIS for herbicide use for vegetation treatments
- Conduct prescribed burns in greater sage-grouse habitat above 6,500 ft elevation, as prescribed

Objective 4.5: Manage wildfire as a tool to improve sage grouse habitats

Implementation actions/timeline
- Develop criteria and guidelines for determining where and how to manage and utilize wildfire to improve sage grouse habitats
- Incorporate and apply criteria and guidelines through relevant plans such as fire & fuels management plans, land use plans, LWG plans, etc.

Objective 4.6: Strategically place and maintain green strips and/or fire breaks within or adjacent to greater sage-grouse habitat to slow or stop the spread of wildfires by 2010.

Implementation actions/timeline
- Identify key habitats in need of protection (R-value classification)
- Determine a course of action
- Coordinate with fuels management personnel within federal agencies

Goal 5: Develop and implement a long-term monitoring program designed to evaluate the response of habitat to wildfire, prescribed burns, and mechanical fuel reduction treatments.

Objective 5.1: Develop common protocols and standardized procedures by 2008 for recording vegetative treatments and results of monitoring efforts.

Implementation actions/timeline

- Determine standard reporting template
- Distribute template to resource agencies for comment
- Finalize template
- Redistribute

Objective 5.2: Develop a common database by 2007 where managers and researchers can record completed and ongoing fire and fuel management and restoration projects.

Implementation actions/timeline:

- Develop a database within SAGEMAP
- Develop and maintain cumulative records for all vegetation treatments to determine and evaluate site specific and cumulative impacts to greater sage-grouse habitats and identify best management practices for successful vegetation treatments.

Objective 5.3: Develop common protocols and standardized procedures by 2008 to conduct post-fire reviews of management plans and actions to revise operating procedures, when necessary.

ISSUE: SCIENCE, DATA MANAGEMENT, AND INFORMATION

SUB-ISSUE 1: Standardized vegetation and other data layer base map and access system

Problem Statement: Lack of a clearinghouse for information related to sage grouse and sagebrush ecosystems

Goal 1: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.

Objective 1.1: Develop a map-based locator on the SAGEMAP website for current and past research and monitoring projects in sagebrush and salt-desert shrub ecosystems.

Objective 1.2: Develop an information-dissemination framework to enable coordinated exchange of sound scientific principles between partners in conservation planning efforts and increase the effectiveness of conservation strategies.

Objective 1.3: Produce data layers appropriate for use in preparing ecoregional assessments. It also will identify primary land uses and changes, potential impacts to sagebrush habitats and associated wildlife, and species of concern that use sagebrush during some part of their life-cycle. Includes the development and maintenance of an updated map of vegetation.

Objective 4: Develop a natural resource information portal for the sage grouse and sage ecosystems. Our goal is to provide easy access to useful information for land managers, researchers, educators, and the general public.

Objective 5: Share data and information on sagebrush habitat and sage-grouse disease. West Nile Virus (WNV) poses a significant threat to sage grouse populations and possibly other wildlife species in sagebrush ecosystems.

Implementation Actions:

- Focus on SAGEMAP as the clearinghouse for a distributed information system
- Develop partnerships among all key stakeholders (public and private) to share their information via the clearinghouse
- Develop real-time information on West Nile Virus through the Wildlife Disease Information Node (WDIN) (http://wildlifedisease.nbii.gov).

Measures of Success:

- SAGEMAP partners and amount of data continues to increase in quantity and usefulness

Key Actors/Participants:
- State and Federal Natural resource agencies, tribes, universities, NGO's, local governments, working groups, industry

Time Frame:
- Build on existing partnerships already in place for SAGEMAP. Continual development with the objective of having a fully functional system by 2009.

Resources Needed:
- Funding
- Dedicated staff

SUB-ISSUE 2: Definition of success for sage-grouse conservation

Problem Statement: Lack of a definition and metrics for success or failure of conservation actions for sage grouse

Goal 1: Develop a definition and metrics for success or failure of conservation actions for sage grouse including population estimates

Objective 1.1: Produce a synthesis of information on the methods, results, effectiveness, and short-term impacts of sage-grouse habitat improvement projects and other management activities within the sagebrush ecosystem,

Objective 1.2: Develop range-wide standards for sustainable sage-grouse populations with sustainable harvest

Objective 1.3: Determine priorities for which areas to focus conservation actions to maintain the functioning of sagebrush ecosystems.

Objective 1.4: Develop an annual region-wide score-card

Implementation Actions:

- WAFWA brings together a team representing partners to identify key metrics using the conservation assessment as the baseline:
- Commission a synthesis of information on the methods, results, effectiveness, and short-term impacts of sage-grouse habitat improvement projects and other management activities within the sagebrush ecosystem,

Measures of Success:

- Metrics that display changes in abundance and distribution are developed and validated
- Activities have clear measures of progress towards desired outcomes
- Score-card helps point to areas or populations needing improvement

Key Actors/Participants:

- University researchers, USGS, North American Grouse Partnership, state wildlife agencies, federal agencies, tribes, local working groups

Time Frame:

- Within 12 months of the completion of the comprehensive strategy the indicators are identified and a draft score-card developed.
- Score-card evaluation done annually thereafter.

Resources Needed:

- Funding
- Dedicated staff

SUB-ISSUE 3: Evaluating social and economic effects of human activities on sage grouse and habitat persistence

Problem Statement: There is a lack of understanding of social and economic effects (both positive and negative) of human activities on sage grouse and habitat persistence

Goal 1: Understanding the role of social and economic factors that influence human actions and decisions on the potential persistence of sage grouse and its habitat

Objective 1.1: Ascertain cost/benefit analysis of status quo, additional conversions and restoration for rangeland uses as well as rural and urban rangelands towns and cities and counties

Objective 1.2: Determine social benefits of status quo, additional conversions and restoration for rangeland uses as well as rural and urban rangelands towns and cities and counties

Implementation Actions:
- Incorporation of key data sets within the data clearinghouse (e.g. value of recreational activities, human demographic trends, employment patterns, trade-offs between economic activities).
- Development of social models for resolving wildlife-human conflicts in a multiple stakeholder environment.
- Attitude surveys to determine the limits of social acceptability of conservation measures and economic trade-offs.

Measures of Success:
- Happy grouse and happy people living in harmony
- Access of key data sets through SAGEMAP.
- Incorporation of social models and attitude surveys in the management decision-making process.

Key Actors/Participants:
- WAFWA, Federal and state agencies, tribes, and universities, NGO's

Time Frame:
- Within 12 months of the completion of the comprehensive strategy the social science team is identified and given their charge
- Surveys continue through the life of the strategy

SUB-ISSUE 4: Ability to predict population outcomes/habitat as a result of vegetation change

Problem Statement: Lack of analytical tools to model effects of habitat treatments (succession, disturbance, bird response)

Goal 1: Development of a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions

Objective 1.1: Develop predictive models for risk assessment and use areas for wildlife species dependent on sagebrush ecosystems

Objective 1.2: Model the cumulative effect of human activities on wildland systems in the western US including the zones of influence of infrastructure features on sage grouse behavior and habitat use.

Objective 1.3: Determine multi-scale changes in land cover composition and configuration in sagebrush ecosystems

Objective 1.4: Validate all models to document their effectiveness in predicting outcomes.

Implementation Actions:
- Assess and adapt current models
- Build models as needed and collect and/or simulate data

Measures of Success:
- Predictive tools are developed, tested, and used by managers

Key Actors/Participants:
- WAFWA, tribes, Federal and state agencies, and universities, NGO's

Time Frame:
- Inventory begins of existing models immediately following the completion of the comprehensive strategy
- Within 12 months of the completion of the comprehensive strategy the modeling team is identified and given their charge

SUB-ISSUE 5: Range-wide research and monitoring collaboration and coordination

Problem Statement: Lack of coordination for funding, research, monitoring and management

Goal 1: The development of an institutional framework to create (above) collaborative effort for funding, research, monitoring and management.

Objective 1.1: Provide a framework to encourage data consistency, quality and compatibility

Objective 1.2: Develop a coordinated program of site-specific research and monitoring projects integrated within the context of the landscape

Objective 1.3: Develop a coordinated effort for securing funds for research within the sagebrush ecosystem.

Objective 1.4: Annual inventory of research and data information needs.

Implementation Actions:
- Follow Federal Geographic Data Council (FGDC) standards
- WAFWA and Federal Agencies form science council
- Research needs are prioritized and assigned and/or offered
- Promote peer review of study plans and products

Measures of Success:
- Science council formed
- Agreement among council members to support the council's priorities
- Funds acquired
- More shared projects between states, federal agencies, and local working groups
- Greater consistency in data analysis, collection and interpretation
- Site-specific studies are integrated across the landscape

Key Actors/Participants:
- WAFWA, Federal agencies, universities, NGO's, Industry, tribes

Time Frame:
- Within 12 months of the completion of the comprehensive strategy the science council is identified and given their charge

ISSUE: REGULATORY MECHANISMS

(including policies but excluding guidelines)

Definitions

Policy: Governing principle, plan, or course of action. Policies may or not be based on laws, ordinances, or regulations.

Regulation: A rule, ordinance, or law including Acts by which conduct or action is regulated.

Regulatory Mechanisms: Any system for doing something that includes rules, ordinances, or laws, including Acts. (Regulatory mechanisms may include but are not limited to local, State, Federal, or Provincial laws and regulations, as well as Ramps, Amps, District and Forest Plans, SCD Plans, State/Provincial Plans, etc.).

SUB-ISSUE 1: There is inconsistent and inadequate application of existing regulations and policies.

Problem Statement: Greater Sage-grouse may be negatively impacted by inconsistent and inadequate application of regulations within and among agencies. For example, the manner in which regulations were applied in Idaho's Abridge RMP negatively affected Greater Sage-grouse abundance and distribution.

Goal 1: Uniformly apply existing regulations, regulatory mechanisms, and policies within and among agencies.

Objective 1.1: Complete a comprehensive range-wide analysis within and among agencies to identify inconsistencies and the reasons they occur among federal, provincial, tribal, state, and local governmental entities/agencies (by 31 December 2007).

Implementation actions/timeline:

- Identify scope of analysis, methods, etc. by 1 October 2006.
- Secure funding and political support for analysis by 1 December 2006.
- Select investigator/vendor (either within agencies or external) by 15 January 2007.
- Complete analysis and report to agencies and public (allow for public review) by 31 December 2007.

Measures of success/monitoring responsibilities

- Completion of analysis and report
- Analysis is used by agencies to resolve inconsistencies

Key actors/participants:

- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors
- NRCS
- Scads
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:

- See timelines for milestones
- Monitored by WAFWA Framework Team

Resources needed

- 1-3 investigators
- $300,000.00

Objective 1.2: Agencies implement corrective action plans in response to analysis and resolve inconsistencies (by 1 October 2008).

Implementation actions/timeline:

- Federal, provincial, tribal, state, and local governmental entities/agencies meet with investigators to discuss report findings by 1 February 2008.
- Federal, provincial, tribal, state and local governmental entities/agencies respond publicly to analysis/report to identify measures they will take to help resolve inconsistencies in policies by 1 October 2008.
- WAFWA and Federal agencies amend MOU to commit to work together to resolve policy inconsistencies 31 January 2009.

Measures of success/monitoring responsibilities:

- Corrective actions are implemented by agencies to resolve inconsistencies.
- MOU is amended.

Key actors/participants

- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors

- FS Regional Offices/Directors
- NRCS
- SCDs
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring

- See timelines for milestones
- Monitored by WAFWA Framework Team
- Agencies develop and implement monitoring plan

Resources needed

- Depend on extent of measures needed to resolve inconsistencies, $300,000.00

SUB-ISSUE 2: Adequacy of regulations

Problem Statement: Emerging science suggests some regulations are antiquated resulting in negative impacts on Greater Sage-grouse and their habitat. Incentive based solutions are limited due to regulatory restrictions.

GOAL 1: Provide a regulatory framework that maintains and enhances Greater Sage-grouse habitat and populations.

Objective 1.1: Evaluate the adequacy of existing regulations (by 31 December 2007).

Implementation actions/timeline:
- Entities/agencies initiate analysis of existing regulations through GAO or other independent group by 15 January 2007.
- Complete analysis and report to agencies and public (allow for public review) by 31 December 2007.

Measures of success/monitoring responsibilities:
- GAO or other independent analysis completed
- Entities/agencies propose necessary changes needed to ensure adequate consideration for Greater Sage-grouse
- Implementation of changes

Key actors/participants:
- GAO
- WAFWA Directors/WGA
- WAFWA Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors
- NRCS
- SCDs
- Tribes
- Local Governments
- LWGs
- Agency investigators or outside vendor

Milestones/monitoring:
- Monitor regulation implementation adequacy

Resources needed:
- 1-3 investigators
- $300,000.00

Objective 1.2: Propose recommendations for regulatory change (by 1 July 2008).

Implementation actions/timeline:
- Blue Ribbon panel of stakeholders and scientists makes recommendations (by 31 December 2007) based on study on consistency (Objective #1), GAO evaluation of implementation (by 31 December 2007) (Objective #2), and other information

Measures of success/monitoring responsibilities:

- Blue Ribbon panel makes recommendations to BLM, FS, states, provinces, tribes, local governmental entities/agencies, Congress, and public

Key actors/participants:

- WAFWA/Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors
- NRCS
- SCDs
- Tribes
- Local Governments
- LWGs

Resources needed:

- Funding to support Blue Ribbon panel travel/per diem and reporting ($300,000.00)

Objective 1.3: Agency implementation by (1 January 2010).

ISSUE: INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS

SUB-ISSUE 1: Current approaches

Problem Statement: Current approaches do not facilitate coordinated planning and implementation and evaluation of plans that integrate the issues and address cumulative effects.

Goal 1: Long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.

Objective 1.1 (short term): Facilitate coordinated, integrated conservation planning across the range.

Implementations actions/Timeline:

- Gather examples of successful coordination and integration of conservation issues among conservation planning efforts. What are the barriers and lessons learned in achieving successful coordination and integration?
- Compile information profile suitable for local and state working groups.
- Share information with local and state working groups
- Develop a mechanism to facilitate planning coordination among working groups and develop and sustain planning capacity at the local level.

Key actors/participants:

- Solicit participation from working group #3 or others in the Forum.
- Framework Team
- Fire Learning Network
- NGO's
- Other agencies

Resources needed:

- Staff

Goal 2: To insure cumulative effects are addressed (biological and socio-economic) across the range

Objective 2.1: To Identify mechanisms to assess and address cumulative effects (biological and socio-economic) across the range

Implementations actions/Timeline:

- Gather examples of successful cumulative effects assessments at large scales. What are the barriers and lessons learned in achieving successful assessments?
- Gather examples of successfully addressing cumulative effects at large scales. What are the barriers and lessons learned?
- Compile information profile suitable for local and state working groups.

- Share information with local and state working groups
- Develop a mechanism to facilitate coordination among working groups and land management agencies

Key actors/participants:
- Solicit participation from working group #3 or others in the Forum.
- Framework Team
- Fire Learning Network
- NGO's
- Other agencies

Resources needed:
- Staff or student

SUB-ISSUE 2: Integration and coordination across range and jurisdictions. There are currently insufficient opportunities to share scientific and management information and learning among local working groups and other sage-grouse stakeholders. This condition could impede implementation of actions that benefit sage-grouse.

Problem Statement: No standardized infrastructure has been developed to facilitate exchange of scientific and management information and learning among local working groups.

Goal 1: Conduct a needs assessment of local working groups that identifies barriers and current level and efficacy of information sharing and learning that has occurred between LWGs, and others involved in sage-grouse conservation efforts.

Objective 1.1: (Short--Term) Complete survey of LWGs to determine:

1. which LWGs have shared information with other LWGs, and other sage-grouse organizations;
2. the nature of the information shared (organizational/process in nature or data/on-the-ground related),
3. the process by which LWGs obtained and shared information and its efficacy,
4. what is needed to enhance information sharing and learning among LWGs, and between LWG and other sage-grouse organizations; and
5. what do LWG need to be successful?

Implementation actions/timeline:

- Identify lead individual or body to implement Objective within 6 months of strategy completion;
- Develop Survey Questionnaire within 9 months of strategy completion;
- Conduct outreach to LWGs on need for a survey as step to ensure efficacy and LWG ownership of and feedback on process (w/in 12 mos.)
- Distribute Questionnaire to LWGs (w/in 12 mos.)
- Create report of questionnaire findings (w/in 18 mos.)
- Implement information sharing/ education mechanisms;
- Identify actions to address needs

Measures of success/monitoring responsibilities:

- Secure funding for survey
- Support of effort by LWGs
- Percentage of LWGs respond to questionnaire
- Implementation mechanisms and actions are in place;
- Key actors/participants
- LWG chairs and members
- State Game and Fish Agency Sage-Grouse Lead Biologist(s)
- WGA
- WAFWA Framework Team
- Surveyor developer/conductor(s) (University?)
- Milestones/monitoring
- Percentage of LWGs that respond to survey questionnaire;
- Timeline met

- Resources needed
- Funding for lead entity to oversee effort
- Funding for conduct and completion of survey
- Funding for dissemination of findings to LWGs
- Funding for implementation of mechanisms and actions identified;

Objective 1.2: Enhance existing and/ or develop new mechanisms by which information from LWGs and others, could be stored, shared and utilized for shared learning among sage-grouse organizations

Implementation actions/timeline:

- WAFWA Framework team identifies the expertise needed (e.g., University extension, non-Framework Team agencies (e.g., USGS))
- WAFWA Framework team generates an inventory of available and potential mechanisms to facilitate information sharing among LWGS (e.g., Sagemap web site, sage-brush center for excellence, NRCS Sage-grouse Restoration Project at USU, Great Basin Learning Network).
- Develop or enhance mechanisms for shared learning;
- Measures of success/monitoring responsibilities
- Framework Team agrees to engage this in the timeframe noted.

Key actors/participants:

- WAFWA Framework Team
- USGS
- Other entities with pertinent expertise

Milestones/monitoring:

- Timeline is met

Resources needed:

- Funding for those involved

SUB-ISSUE 3: Integration and coordination across range and jurisdictions/Inconsistency in policy and coordination across jurisdictional boundaries.

Problem Statement: Lack of coordination of agency policies, programs and regulations at national, regional, state and local levels to address issues has adversely affected sage-grouse conservation at multiple levels.

Goal 1: Coordinated policies that enhance sage-grouse conservation efforts at multiple levels.

Objective 1.1: Complete an analysis of land management policies and land management plan direction to identify inconsistencies among federal, state, local, provincial, and tribal policies that create barriers that may inhibit sage-grouse conservation.

Implementation actions/timeline:
- Prepare proposal to identify scope of analysis, methods, etc.--7/07
- Secure support for analysis -- 10/07
- Select investigator/vendor (either within agencies or external) --12/07
- Complete analysis and report to agencies and public -- 7/08

Measures of success/monitoring responsibilities:
- Completion of analysis and report
- Analysis is used by agencies and LWGs to resolve inconsistencies

Key actors/participants:
- WAFWA/Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors
- State/Provincial Wildlife Directors
- Tribes
- LWGs
- NRCS
- USFWS
- Soil and Water Conservation Districts
- Agency investigators or outside vendor

Milestones/monitoring:
- See timelines for milestones
- Monitored by state working group (see Objective 3)

Resources needed:
- 1-3 investigators
- $100,000

Objective 1.2: Agencies and LWGs act to resolve inconsistencies that may inhibit sage-grouse conservation.

Implementation actions/timeline:
- Federal, tribal, and state agencies meet with investigators to discuss report findings -- 7/08

- Federal, tribal, and state agencies respond publicly to analysis/report to identify measures they will take to help resolve inconsistencies in policies-- 12/08
- WAFWA and Federal agencies amend MOU to commit to work together to resolve policy inconsistencies -- 12/08
- Establish a representative management level (State Director, Regional Forester, and State Wildlife Director) coordination team to meet annually to agree on policy changes identified by the report.

Measures of success/monitoring responsibilities:
- Analysis is used by agencies and LWGs to resolve inconsistencies
- MOU is amended

Key actors/participants:
- WAFWA/Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors
- State/Provincial Wildlife Directors
- LWGs
- NRCS
- USFWS
- Soil and Water Conservation Districts
- Agency investigators or outside vendor

Milestones/monitoring:
- Monitored by the State Working Groups

Resources needed:
- Depend on extent of measures needed to resolve inconsistencies

Goal 2: Federal, state, and LWG practices will meet PECE guidelines.

Objective 2.1: Federal, state, and LWG demonstrate how elements of the Policy for Evaluation of Conservation Efforts (PECE) of the U.S. Fish and Wildlife Service are being implemented.

Implementation actions/timeline:
- Federal and state agencies and LWGs agree to publish annual reports on efforts that meet objectives of certainty of implementation and effectiveness from PECE. - 4/07
- Amend MOU to make joint commitment -- 7/07

Measures of success/monitoring responsibilities:
- Annual reports of efforts that meet objectives of PECE are published annually
- MOU is amended

Key actors/participants:
- WAFWA/Framework Team
- BLM State Offices/Directors
- FS Regional Offices/Directors

- State/Provincial Wildlife Directors
- LWGs
- FWS

Milestones/monitoring:

- State Sage-Grouse Working Team

Resources needed:

- FTEs for reporting
- Funding for reporting

APPENDIX C3

Appendix 3
of the
Final Report of the
Greater Sage-grouse Range-wide Issues Forum

Forum Goals and Objectives

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Conservation and protection of habitats which are important and/or intact: "saving the best."**	**Goal 1:** Conserve important and/or intact habitats and stabilize the loss of habitat across the range. [*Cross Reference with Habitat Conservation and Land Use Goals & Objectives.]*	
Habitat Conservation and Land Use	**Conservation and protection of habitats which are important and/or intact: "saving the best."**	**Goal 1:** Conserve important and/or intact habitats and stabilize the loss of habitat across the range. [*Cross Reference with Habitat Conservation and Land Use Goals & Objectives.]*	**Objective 1.2** (mid-term): Protect quality sage-grouse habitat from wildfire, invasive species, pinyon/juniper succession, improper livestock grazing practices, urban encroachment, roads & transmission lines, tall structures, and energy development.
Habitat Conservation and Land Use	**Conservation and protection of habitats which are important and/or intact: "saving the best."**	**Goal 1:** Conserve important and/or intact habitats and stabilize the loss of habitat across the range. [*Cross Reference with Habitat Conservation and Land Use Goals & Objectives.]*	**Objective 1.3** (long-term): Ensure that management practices and policies are geared toward maintaining or recovering sagebrush steppe habitat. This includes post-treatment management.
Habitat Conservation and Land Use	**Conservation and protection of habitats which are important and/or intact: "saving the best."**	**Goal 1:** Conserve important and/or intact habitats and stabilize the loss of habitat across the range. [*Cross Reference with Habitat Conservation and Land Use Goals & Objectives.]*	**Objective 1.4:** Establish monitoring program, protocols, and methods to evaluate status and trend of important habitats identified under objective 1 at the site and range-wide scales.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 1:** Develop a comprehensive and range-wide list of invasive species which degrade sage-grouse habitats.	**Objective 1.1:** Identify and prioritize invasive species that pose the greatest risk by December 2007.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 1:** Develop a comprehensive and range-wide list of invasive species which degrade sage-grouse habitats.	**Objective 1.2:** Review and recommend modification of State and Province noxious species lists to fund control measures of invasive species of concern by December 2008.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 2:** Identify and map the threat of invasive species within greater sage-grouse habitats.	**Objective 2.1:** Develop and apply range-wide models for the seven geographic subdivisions in the Sagebrush biome (e.g., spread vector analysis) to provide spatial estimates of the current and future risk of top priority invasive plant species by 2009 (short-term objective).
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 2:** Identify and map the threat of invasive species within greater sage-grouse habitats.	**Objective 2.2:** Develop range-wide and geographic zone maps of the current distribution of invasive plant species and compatible across different state or provincial boundaries by 2009-10 (Short-term objective).
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 2:** Identify and map the threat of invasive species within greater sage-grouse habitats.	**Objective 2.3:** For range-wide efforts, develop and implement site-specific detection surveys and protocols to maximize the likelihood of finding new patches of invasive plant species before they expand. By 2008 (Short-term objective).
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 3:** Identify knowledge gaps and develop guidelines for control of invasive plant species within greater sage-grouse habitat.	**Objective 3.1:** Create methods to prioritize invasive species control on the basis of sagebrush habitat recovery potential in critical Sage-grouse range by 2008. (Short-term objective).

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 3:** Identify knowledge gaps and develop guidelines for control of invasive plant species within greater sage-grouse habitat.	**Objective 3.2:** Compile and/or identify, and implement, integrated invasive species control methods for the 7 geographic subdivisions in the Sagebrush biome by 2008 (e.g., grazing, mowing, seeding, herbicides) (short-term objective).
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 3:** Identify knowledge gaps and develop guidelines for control of invasive plant species within greater sage-grouse habitat.	**Objective 3.3:** Compile and/or identify, and implement, beneficial management practices to minimize negative impacts of invasive species control methods in objective #2 on greater sage-grouse populations and their habitats (e.g., do not conduct any vegetation treatments during nesting and early-brood rearing periods when sage-grouse are present) by 2008.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 4:** Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.	**Objective 4.1:** Compile and/or identify, and implement, guidelines for containment of existing infestations (e.g., border spraying, planting barriers of aggressive plants, grazing to minimize seed production) by 2008.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 4:** Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.	**Objective 4.2**: Compile and/or identify, and implement, beneficial management practices pertinent to domestic livestock and wildlife that will minimize the spread of invasive species by 2008.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 4:** Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.	**Objective 4.3:** Compile and/or identify, and implement, beneficial management practices pertinent to access, vehicles, and equipment that will minimize the spread of invasive species by 2008.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 4:** Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.	**Objective 4.4:** Develop and implement plans for areas treated for invasive species incorporating a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the re-invasion of undesirable species. COORDINATE WITH RESTORATION SUBCOMMITTEE.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 4:** Reduce the risk of new infestations of invasive species in greater sage-grouse habitat.	**Objective 4.5:** Anticipate infestations of new invasive species and educate to target and prevent establishment, now to forever!
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 5:** Integrate and coordinate invasive species management throughout greater sage-grouse habitat to increase effectiveness. COORDINATE WITH INTEGRATION SUBCOMMITTEE.	**Objective 5.1:** Develop partnerships among regional public and private land management entities to develop and implement identified objectives by 2008

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 5:** Integrate and coordinate invasive species management throughout greater sage-grouse habitat to increase effectiveness. COORDINATE WITH INTEGRATION SUBCOMMITTEE.	**Objective 5.2:** Solicit involvement of local weed management specialists, private landowners, wildlife biologists, and range ecologists to share knowledge and develop response plans for invasive species by 2008.
Habitat Conservation and Land Use	**Invasive Plant Species**	**Goal 5:** Integrate and coordinate invasive species management throughout greater sage-grouse habitat to increase effectiveness. COORDINATE WITH INTEGRATION SUBCOMMITTEE.	**Objective 5.3:** Supplement existing invasive species control programs with materials specific to the benefits of proactive management within sage grouse habitats (including weed identification, mechanisms for invasion and dissemination of invasive species, and methods of treating) by 2008.
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.1:** Use scientific data and historic information to establish baseline information (e.g. Ecological Site Descriptions) when evaluating soil quality and ecological processes in sage grouse habitats.
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.2:** Use WAFWA habitat guidelines where achievable considering Ecological Site Descriptions and rangeland health standards to implement flexible and appropriate grazing management systems (season of use, grazing duration, kind of livestock, and stocking intensity).

Issue	**Subissue**	**Goal**	**Objective**
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.3:** Develop and/or adopt a consistent monitoring program that address effects of grazing management systems and show trends over time. In addition to monitoring progress towards achieving the WAFWA guidelines, monitor the response of vegetation (vigor and production), and the compositional diversity of species. Use monitoring methods that are best suited to the type of grazing management being practiced at a site.
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.4:** Encourage the coordination of landscape management activities on private, federal, state and tribal lands to provide yearlong benefits to sage grouse.
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.5:** Offer incentives when and where appropriate to achieve sage grouse habitat objectives.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Livestock Grazing**	**Goal 1:** Manage grazing to maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community that addresses the long-term needs of sage grouse and other sagebrush associated species.	**Objective 1.6:** Review current land management agencies' grazing programs to ensure consistency and compatibility with the Comprehensive Strategy.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 1:** Identify where agriculture lands are associated with sage-grouse habitat.	**Objective 1.1:** Identify and prioritize agriculture lands that provide the greatest habitat value for sage-grouse.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 2:** Implement management practices on agriculture lands that protect or minimize harm to sage-grouse.	**Objective 2.1** Encourage spot treatment of weeds instead of whole field/pasture chemical treatment.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 2:** Implement management practices on agriculture lands that protect or minimize harm to sage-grouse.	**Objective 2.2** Provide information and incentives to minimize application of insecticides in hayfields.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 2:** Implement management practices on agriculture lands that protect or minimize harm to sage-grouse.	**Objective 2.3** Provide agricultural producers information and incentives on harvesting techniques that reduce bird mortality.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 2:** Implement management practices on agriculture lands that protect or minimize harm to sage-grouse.	**Objective 2.4** Identify the extent to which agricultural water management and infrastructure contributes to the threat of West Nile virus.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 3:** Adjust incentives to encourage the retention and restoration of sagebrush habitat.	**Objective 3.1** Identify incentives that are counter productive to the retention of sage-grouse habitat.
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 3:** Adjust incentives to encourage the retention and restoration of sagebrush habitat.	**Objective 3.2** Modify and fund existing programs to encourage the retention of sage-grouse habitat (e.g. Grasslands Reserve Program, Landowner Incentive Program) and restoration of sage-grouse habitat (CRP).
Habitat Conservation and Land Use	**Agricultural Lands**	**Goal 3:** Adjust incentives to encourage the retention and restoration of sagebrush habitat.	**Objective 3.3** Prioritize re-enrollment of CRP lands providing habitat or adjacent to existing sage-grouse populations or other sensitive or declining species.
Habitat Conservation and Land Use	**Fences**	**Goal 1:** Summarize or quantify the direct and indirect effects of fences on sage-grouse	**Objective 1.1:** Compile and analyze all known accounts of direct and indirect impacts of fencing on sage grouse and similar species to identify high risk situations.
Habitat Conservation and Land Use	**Fences**	**Goal 2:** Compile all known efforts regarding fence design, siting or modifications that have been used to mitigate the potential effect of fences on sage-grouse.	**Objective 2.1:** Compile and analyze all known anecdotal observations, research and/or case studies regarding fence design, siting and modifications that have been implemented to mitigate the direct and indirect impacts of fencing on sage grouse and similar species.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Fences**	**Goal 3:** Implement and evaluate/monitor the effectiveness of proposed fence design, siting and modifications on mitigation direct and indirect impacts on sage-grouse.	**Objective 3.1** Conduct site specific evaluation of fence designs or modifications proposed to mitigate the direct and indirect impacts on sage-grouse. The site specific locations would be identified under Objective 1.1.
Habitat Conservation and Land Use	**Fences**	**Goal 4.** Disseminate the results of the work conduct under Objectives 1-3.	**Objective 4.1** Publish site-specific fencing best management recommendations regarding design, siting and modifications that demonstrate the greatest potential to mitigate the direct and indirect impacts on sage-grouse.
Habitat Conservation and Land Use	**Fences**	**Goal 4.** Disseminate the results of the work conduct under Objectives 1-3.	**Objective 4.2** Promote and distribute site-specific fencing best management recommendations regarding design, siting and modifications that demonstrate the greatest potential to mitigate the direct and indirect impacts on sage-grouse.
Habitat Conservation and Land Use	**Surface Hydrology**	**Goal 1:** Determine the effects of water management on the sagebrush biome.	**Objective 1.1:** Assess climate records and other available data for selected locations in the sagebrush biome, for extreme precipitation events and runoff events that may have impacted sage-grouse or sagebrush.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Surface Hydrology**	**Goal 1:** Determine the effects of water management on the sagebrush biome.	**Objective 1.2:** Test the hypothesis of how changes in water management can increase the productivity of sagebrush ecosystems and enhance sage-grouse populations. This should include a detailed investigation in strategically-selected sagebrush habitats, to assess the importance of surface water flow (including nutrients and sediments) for the maintenance of sagebrush habitats.
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 1:** Evaluate effects of existing energy corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.	**Objective 1.1:** Review existing research studies and monitoring data for effects of energy corridors and associated facilities on Greater sage-grouse or sagebrush habitat.
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 1:** Evaluate effects of existing energy corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.	**Objective 1.2:** Design and conduct additional research and monitoring studies to determine effects of existing and proposed energy corridors and associated facilities on sage-grouse and sagebrush habitat.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 2:** Based on research and monitoring data, develop consistent criteria and management guidelines to locate energy corridors and operate and maintain facilities within energy corridors that cross critical sage-grouse habitat in a manner that minimizes impacts to sage-grouse and sagebrush habitat.	**Objective 2.1:** Develop siting criteria and management guidelines for locating energy corridors and operating facilities within energy corridors to minimize impacts.
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 3:** Cooperatively develop and adopt appropriate mitigation measures and best management practices for constructing new facilities within energy corridors and conducting operation and maintenance activities associated with facilities within energy corridors that will minimize impacts to sage-grouse and sagebrush habitat.	**Objective 3.1:** Develop mitigation measures and best management practices for construction and operation of new facilities within energy corridors.
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 4:** Cooperatively develop and implement appropriate monitoring plans to assess effects of new facilities within energy corridors on sage-grouse and sagebrush habitat and adjust mitigation measures and best management practices based on monitoring results.	**Objective 4.1:** Develop and implement monitoring plans to measure effects of facilities within energy corridors on sage-grouse and sagebrush habitats.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Infrastructure: Energy Corridors**	**Goal 4:** Cooperatively develop and implement appropriate monitoring plans to assess effects of new facilities within energy corridors on sage-grouse and sagebrush habitat and adjust mitigation measures and best management practices based on monitoring results.	**Objective 4.2:** Adjust mitigation measures and BMPs based on monitoring results.
Habitat Conservation and Land Use	**Infrastructure: Fences**	**Goal 1:** Design, site, or modify fences to avoid, reduce, and where possible, eliminate injuries to and mortality of greater sage-grouse.	**Objective 1.1:** Estimate risk of collisions of greater sage-grouse with fences by fence type (2, 3, 4, 5-strand, sheep-tight, electric, wood or metal posts, etc.).
Habitat Conservation and Land Use	**Infrastructure: Fences**	**Goal 1:** Design, site, or modify fences to avoid, reduce, and where possible, eliminate injuries to and mortality of greater sage-grouse.	**Objective 1.2:** Estimate risk of collisions associated with fence placement where greater sage-grouse may intersect fences (winter, breeding, brooding, etc.).
Habitat Conservation and Land Use	**Infrastructure: Fences**	**Goal 1:** Design, site, or modify fences to avoid, reduce, and where possible, eliminate injuries to and mortality of greater sage-grouse.	**Objective 1.3:** Develop and implement fence design and placement standards to reduce or eliminate injuries and mortalities to greater sage-grouse.
Habitat Conservation and Land Use	**Infrastructure: Fences**	**Goal 1:** Design, site, or modify fences to avoid, reduce, and where possible, eliminate injuries to and mortality of greater sage-grouse.	**Objective 1.4:** Inventory and replace or relocate fences (over time) that are poorly designed or placed so that injuries and mortalities of greater sage-grouse are reduced or eliminated.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 1:** Evaluate effects of existing roads, trails and railroad corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.	**Objective 1.1:** Review existing available published research and monitoring data for effects of roads and railroads sage-grouse, related species, or sagebrush habitat
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 1:** Evaluate effects of existing roads, trails and railroad corridors and associated facilities on sage-grouse and sagebrush habitat. Potential effects may include habitat fragmentation, providing conduits for spread of invasive species, noise disturbance, etc.	**Objective 1.2:** Design and implement additional research and monitoring studies to fill information gaps related to effects of existing and potential roads or railroads on sage-grouse and sagebrush habitat.
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 2:** Develop consistent criteria and management guidelines to locate, construct, maintain, or close roads and railroads, to minimize impacts to sage-grouse and sagebrush habitat.	**Objective 2.1:** Cooperatively develop management guidelines or best management practices for locating, constructing, maintaining, or closing roads, trails, and rail systems.
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 3:** Implement appropriate mitigation measures or best management practices for constructing and maintaining roads and railroads within sagebrush habitat that will minimize impacts to sage-grouse and sagebrush habitat.	**Objective 3.1:** Implement mitigation measures or best management practices for construction and maintenance of new roads and railroads.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 4:** Cooperatively develop monitoring plans to assess effects of roads and railroads and to measure effectiveness of BMPs and mitigation measures in minimizing effects of roads on sage-grouse and sagebrush habitat.	**Objective 4.1:** Develop monitoring plans to measure effectiveness of BMPs and mitigation measures in minimizing effects of roads and railroads on sage-grouse and sagebrush habitats.
Habitat Conservation and Land Use	**Infrastructure: Roads & Railroads**	**Goal 4:** Cooperatively develop monitoring plans to assess effects of roads and railroads and to measure effectiveness of BMPs and mitigation measures in minimizing effects of roads on sage-grouse and sagebrush habitat.	**Objective 4.2:** Adjust mitigation measures and BMPs based on monitoring results.
Habitat Conservation and Land Use	**Infrastructure: Tall Structures**	**Goal 1:** Compile and evaluate existing published research on effects to Greater sage-grouse due to direct impacts of existing tall structures.	**Objective 1.1:** Evaluate adequacy of existing research information to assess or predict potential direct impacts of tall structures.
Habitat Conservation and Land Use	**Infrastructure: Tall Structures**	**Goal 2:** Develop research protocols for conducting new studies to assess direct impacts of tall structures.	**Objective 2.1:** Develop peer reviewed and scientific protocols to assess impacts of tall structures and potential mitigation methods.
Habitat Conservation and Land Use	**Infrastructure: Tall Structures**	**Goal 3:** Develop scientific and consistent siting and Operation & Maintenance (O&M) criteria for "tall structures" in Greater sage-grouse habitat that will minimize negative impacts on Greater sage-grouse.	**Objective 3.1:** Compile existing siting and O&M criteria or conditions in federal, state and local working group plans pertaining to tall structures.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Infrastructure: Tall Structures**	**Goal 3:** Develop scientific and consistent siting and Operation & Maintenance (O&M) criteria for "tall structures" in Greater sage-grouse habitat that will minimize negative impacts on Greater sage-grouse.	**Objective 3.2:** Develop consistent siting guidelines for tall structures.
Habitat Conservation and Land Use	**Infrastructure: Tall Structures**	**Goal 4:** Develop best management practices (BMPs) and appropriate mitigation measures that can be implemented for siting and O&M activities associated with tall structures.	**Objective 4.1:** Cooperatively develop best management practices and appropriate mitigation measures.
Habitat Conservation and Land Use	**Infrastructure: Urban/Exurban Development**	**Goal 1:** Avoid or minimize incursion of urban and exurban development into greater sage-grouse habitats.	**Objective 1.1:** Identify sage-grouse habitats most at risk to urban and exurban development.
Habitat Conservation and Land Use	**Infrastructure: Urban/Exurban Development**	**Goal 1:** Avoid or minimize incursion of urban and exurban development into greater sage-grouse habitats.	**Objective 1.2:** Promote efforts to maintain ecologically sustainable private lands and economically viable ranches in sage-grouse habitats.
Habitat Conservation and Land Use	**Infrastructure: Urban/Exurban Development**	**Goal 1:** Avoid or minimize incursion of urban and exurban development into greater sage-grouse habitats.	**Objective 1.3:** Develop and implement governmental land management agency land tenure policies to acquire, maintain, or enhance greater sage-grouse habitats.
Habitat Conservation and Land Use	**Dispersed Recreation**	**Goal 1:** Manage dispersed recreational activities to avoid, reduce, and where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.	**Objective 1.1:** Review what is known about impacts of dispersed recreation on greater sage-grouse.

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Dispersed Recreation**	**Goal 1:** Manage dispersed recreational activities to avoid, reduce, and where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.	**Objective 1.2:** Review what is known about effects of dispersed recreational activities on greater sage-grouse habitat.
Habitat Conservation and Land Use	**Dispersed Recreation**	**Goal 1:** Manage dispersed recreational activities to avoid, reduce, and where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.	**Objective 1.3:** Develop management practices to avoid, reduce, or eliminate disturbance to or displacement of greater sage-grouse and effects to greater sage-grouse habitat from dispersed recreational activities.
Habitat Conservation and Land Use	**Dispersed Recreation**	**Goal 1:** Manage dispersed recreational activities to avoid, reduce, and where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.	**Objective 1.4:** Implement management practices to avoid, reduce, or eliminate negative impacts of recreational activities on greater sage-grouse and their habitat.
Habitat Conservation and Land Use	**Non-Renewable Energy**	**Goal 1**: Enhanced Greater Sage-grouse habitats and populations, with assurance of no 'net loss' of habitat or grouse populations, at an appropriate spatial and temporal scale, while providing for non-renewable resource development and utilization.	**Objective 1.1:** Develop no 'net loss' criteria and methods to accurately assess current habitat/population status, potential impacts and mitigation needs (e.g. habitat equivalency, mitigation ratios, mitigation banking), and mechanisms for implementation. *The Framework Team needs to apply across all land uses.*

Issue	Subissue	Goal	Objective
Habitat Conservation and Land Use	**Non-Renewable Energy**	**Goal 1**: Enhanced Greater Sage-grouse habitats and populations, with assurance of no 'net loss' of habitat or grouse populations, at an appropriate spatial and temporal scale, while providing for non-renewable resource development and utilization.	**Objective 1.2:** Synthesize existing and develop new technologies and practices that off-set, reduce and/or minimize disturbance associated with resource recovery activities. Disseminate technologies and practices through a central repository.
Habitat Conservation and Land Use	**Non-Renewable Energy**	**Goal 1**: Enhanced Greater Sage-grouse habitats and populations, with assurance of no 'net loss' of habitat or grouse populations, at an appropriate spatial and temporal scale, while providing for non-renewable resource development and utilization.	**Objective 1.3:** Develop and implement voluntary incentive programs for mitigation
Habitat Restoration	**Conifer Encroachment**	**Goal 1:** Identify and map the threat of encroachment of conifer species within greater sage-grouse habitats.	**Objective 1.1:** Develop, apply, and evaluate models to provide spatial estimates of risk of encroachment of conifer species by 2010.
Habitat Restoration	**Conifer Encroachment**	**Goal 1:** (Short term) Identify and map the current extent and future threat of encroachment of conifer species within greater sage-grouse habitats.	**Objective 1.2:** (Short term) Develop, apply, and evaluate models to provide spatial estimates of risk of encroachment of conifer species by 2010.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Conifer Encroachment**	**Goal 2:** In order to support defensible and well-informed resource management decisions to benefit sage grouse, synthesize information on the habitat relationships of wildlife associated with pinyon-juniper and other conifers (all phases) which have invaded sagebrush habitats.	**Objective 2.1:** (Short term) Initiate a comprehensive synthesis of habitat relationships for plant and animal species of concern (e.g., ferruginous hawk, gray vireo, juniper titmouse, pinyon jay) to define high-quality habitat and identify species needs associated with conifer encroachment by 2008.
Habitat Restoration	**Conifer Encroachment**	**Goal 2:** In order to support defensible and well-informed resource management decisions to benefit sage grouse, synthesize information on the habitat relationships of wildlife associated with pinyon-juniper and other conifers (all phases) which have invaded sagebrush habitats.	**Objective 2.2:** (Short term) Based on information gaps identified under objective 1, initiate research and/or monitoring to fill these gaps about species of concern by 2010.
Habitat Restoration	**Conifer Encroachment**	**Goal 2:** In order to support defensible and well-informed resource management decisions to benefit sage grouse, synthesize information on the habitat relationships of wildlife associated with pinyon-juniper and other conifers (all phases) which have invaded sagebrush habitats.	**Objective 2.3:** (Short term) Incorporate the results of these studies into plans (e.g. LWGs, LUPs, statewide plans, NEPA analyses) to manage conifer encroachment into greater sage-grouse habitat.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Conifer Encroachment**	**Goal 2:** In order to support defensible and well-informed resource management decisions to benefit sage grouse, synthesize information on the habitat relationships of wildlife associated with pinyon-juniper and other conifers (all phases) which have invaded sagebrush habitats.	**Objective 2.4:** (Short term): Initiate research and/or monitoring to understand the effects of management actions on the species of concern and their habitats by 2010
Habitat Restoration	**Conifer Encroachment**	**Goal 3:** Develop and implement control measures for encroaching conifer species within greater sage-grouse habitat.	**Objective 3.1:** (Short term) Identify by 2010 sites of conifer encroachment that still have an understory of sagebrush and native perennial species and treat (this objective may need some work since we said in our goal statement that we would "develop **and implement** control measures"; assign a high priority for treatment since they have higher likelihood of successful rehabilitation than areas where the sagebrush understory has been depleted.
Habitat Restoration	**Conifer Encroachment**	**Goal 3:** Develop and implement control measures for encroaching conifer species within greater sage-grouse habitat.	**Objective 3.2:** (Short-term) Identify by 2010 former sagebrush sites with a conifer overstory that have a depleted sagebrush and native perennial herbaceous understory; develop specific restoration plans that maximize removal of encroaching species and recovery of sagebrush and associated understory species.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Conifer Encroachment**	**Goal 3:** Develop and implement control measures for encroaching conifer species within greater sage-grouse habitat.	**Objective 3.3:** (Mid term) Initiate research to identify effective integrated treatment methods (e.g., fire, mechanical treatment, herbicides) and apply those methods where appropriate by 2015.
Habitat Restoration	**Conifer Encroachment**	**Goal 3:** Develop and implement control measures for encroaching conifer species within greater sage-grouse habitat.	**Objective 3.4:** (Short term) Based on an evaluation of current practices and guidance, refine and implement guidelines for reducing negative impacts of conifer control activities on greater sage-grouse populations and their habitats by 2007.
Habitat Restoration	**Conifer Encroachment**	**Goal 4:** Develop and implement a long-term monitoring program designed to evaluate the effectiveness of methods to control conifer encroachment into greater sage-grouse habitat.	**Objective 4.1:** (Long term) Develop common protocols and standardized procedures by 2008 for recording treatments and results of monitoring efforts.
Habitat Restoration	**Conifer Encroachment**	**Goal 4:** Develop and implement a long-term monitoring program designed to evaluate the effectiveness of methods to control conifer encroachment into greater sage-grouse habitat.	**Objective 4.2:** (Short term) Develop a rangewide common database by 2007 where managers and researchers can record completed and ongoing pinyon, juniper and other coniferous species removal projects.
Habitat Restoration	**Conifer Encroachment**	**Goal 5:** Integrate and coordinate conifer control efforts within greater sage-grouse habitat to increase effectiveness.	**Objective 5.1:** (Short term) Develop partnerships among regional public and private land management entities by 2008 to develop and implement identified objectives.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Conifer Encroachment**	**Goal 5:** Integrate and coordinate conifer control efforts within greater sage-grouse habitat to increase effectiveness.	**Objective 5.2:** (Short term) Develop and conduct integrated training on the management of conifer encroachment by 2008 (including mechanisms for encroachment, ecological conditions that facilitate encroachment, and methods of treating encroachments).
Habitat Restoration	**Conifer Encroachment**	**Goal 6:** Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.	**Objective 6.1** (Mid term): Develop incentives by 2015 for private contractors to remove encroaching conifers to accomplish sage grouse habitat improvement objectives across all land ownerships.
Habitat Restoration	**Conifer Encroachment**	**Goal 6:** Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.	**Objective 6.2** (Mid term): Expand and promote incentives for conifer removal on private lands for improving sage grouse habitat
Habitat Restoration	**Conifer Encroachment**	**Goal 6:** Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.	**Objective 6.3:** Increase availability of equipment (such as masticators, grinders, chippers) within agencies and to operators by 2009 (see subissue strategy related to planting expertise for specifics).
Habitat Restoration	**Conifer Encroachment**	**Goal 6:** Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.	**Objective 6.4** (Short, Mid, and Long term): Promote programmatic integration of wildland fire & fuels management planning and implementation with conifer treatment activities at local, regional, and rangewide scales.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Conifer Encroachment**	**Goal 6:** Increase the efficiency/efficacy of conducting conifer removal in greater sage-grouse habitats.	**Objective 6.5** (Short term): Improve the ability by 2008 of federal agencies to meet their mandates for environmental and archaeological reviews of sites proposed for conifer removal in a timely manner.
Habitat Restoration	**Conifer Encroachment**	**Goal 7:** Streamline procurement and contracting procedures to facilitate timely and effective interagency conifer treatments and other restoration activities. .	**Objective 7.1:** Evaluate and modify existing procedures to streamline procurement and contracting and to facilitate seamless interagency programs.
Habitat Restoration	**Conifer Encroachment**	**Goal 7:** Streamline procurement and contracting procedures to facilitate timely and effective interagency conifer treatments and other restoration activities.	**Objective 7.2**: Increase procurement and contracting staffing
Habitat Restoration	**Conifer Encroachment**	**Goal 7:** Streamline procurement and contracting procedures to facilitate timely and effective interagency conifer treatments and other restoration activities.	**Objective 7.3**: Increase trained field staff to serve as contract administrators, inspectors, and contracting officer representatives (COR)
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 1:** Establish a realistic extent (acres and/or percentage of historic) of range that can be restored to support the needs of sage-grouse by December 2006.	**Objective 1.1** (short-term): Standardize a protocol for characterizing the restoration potential of particular habitats that have been degraded.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 1:** Establish a realistic extent (acres and/or percentage of historic) of range that can be restored to support the needs of sage-grouse by December 2006.	**Objective 1.2 (short-term):** Determine area of historic range (acres) that is "unlikely" to be restored without substantial mechanical involvement or cost by 12/2006. Do this in consort with LWGs.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 1:** Establish a realistic extent (acres and/or percentage of historic) of range that can be restored to support the needs of sage-grouse by December 2006.	**Objective 1.3** (short-term): Determine the number of acres or percentage of range that is likely to be restored with adjustments in management, limited mechanical involvement, and/or reasonable cost.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 2:** Ensure that restoration techniques are ecologically sound and attainable.	**Objective 2.1** (short-term): Determine desired future condition: What attributes are we seeking.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 2:** Ensure that restoration techniques are ecologically sound and attainable.	**Objective 2.2** (short-term): Establish a user guide to restoring sagebrush habitats based on information currently available (is this CIRP?).
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 2:** Ensure that restoration techniques are ecologically sound and attainable.	**Objective 2.3** (long-term): Support technical assistance and workshops that demonstrate restoration efforts that worked and did not work.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 2:** Ensure that restoration techniques are ecologically sound and attainable.	**Objective 2.4** (mid-term): Establish a research and monitoring program to evaluate the effectiveness of treatments and management adjustments in meeting restoration goals; include clearinghouse for distributing knowledge from monitoring.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 3:** Restore number of acres or percentage of range from Goal #1 above by the year 2030 (or 2040?).	**Objective 3.1** (short-term): Determine a prioritized list of sites from the exercise in Goal #1 to restore.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 3:** Restore number of acres or percentage of range from Goal #1 above by the year 2030 (or 2040?).	**Objective 3.2** (short term): In consort with LWGs, develop restoration work plan(s) which establishes actions to implement restoration in priority areas. Include, as appropriate, NEPA compliance.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 3:** Restore number of acres or percentage of range from Goal #1 above by the year 2030 (or 2040?).	**Objective 3.3** (long-term): Restore degraded sites on public, private and tribal lands where feasible
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 3:** Restore number of acres or percentage of range from Goal #1 above by the year 2030 (or 2040?).	**Objective 3.4** (long-term): Optimize post-fire restoration efforts so that goals/objectives include restoring sagebrush/sage-grouse habitat needs.
Habitat Restoration	**Range-wide habitat restoration assessment & planning**	**GOAL 4:** Develop and Implement Coordinated and Targeted (enforcement and restoration) restoration efforts across jurisdictional or state boundaries [*Cross Reference with Work Group #3: Integration and coordination across range and jurisdictions, Sub-Issue 4 (Coordinated restoration on broad scale)*]	**Objective 4.1:** Based on work plan described above, coordinate plans across state and regional boundaries.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Native seed availability**	**Goal 1:** Develop a regional assemblage of species that are site adapted and available in quantities needed to implement restoration priority projects/actions. Increase the availability of seed and restoration methods/expertise to restore plant COMMUNITIES, not just individual plant species.	**Objective 1.1 – Research:** Establish regionally-based research programs to develop procedures to grow and produce the desired seed species (crosswalk with science group).
Habitat Restoration	**Native seed availability**	**Goal 1:** Develop a regional assemblage of species that are site adapted and available in quantities needed to implement restoration priority projects/actions. Increase the availability of seed and restoration methods/expertise to restore plant COMMUNITIES, not just individual plant species.	**Objective 1.2 – Define specific species and quantities needed**: determine and develop individual species that will be required and the amount of seed to restore sagebrush habitats identified as having the potential for restoration and the amounts of seed needed on an annual basis (under the previous habitat restoration goal - not just native species, includes site-adapted non-native species).
Habitat Restoration	**Native seed availability**	**Goal 1:** Develop a regional assemblage of species that are site adapted and available in quantities needed to implement restoration priority projects/actions. Increase the availability of seed and restoration methods/expertise to restore plant COMMUNITIES, not just individual plant species.	**Objective 1.3 – Developing and Facilitating Commercially Available Seed:** Develop programs to assure commercial production and availability of individual species (see Idaho seed strategy; SEAM) (surface environment and mining strategy) in the quantities needed to implement restoration projects.

Issue	Subissue	Goal	Objective
Habitat Restoration	**Native seed availability**	**Goal 1:** Develop a regional assemblage of species that are site adapted and available in quantities needed to implement restoration priority projects/actions. Increase the availability of seed and restoration methods/expertise to restore plant COMMUNITIES, not just individual plant species.	**Objective 1.4 – Warehousing and Distribution:** Develop regional seed warehousing or means to supply seed to cooperating users.
Habitat Restoration	**Planting expertise**	**Goal 1:** Plan and conduct research to increase knowledge about restoration methods and their effects in the full range of habitat types and degrees of disturbance.	**Objective 1.1:** Produce and maintain synthesis of research and information about restoration methods and effects
Habitat Restoration	**Planting expertise**	**Goal 1:** Plan and conduct research to increase knowledge about restoration methods and their effects in the full range of habitat types and degrees of disturbance.	**Objective 1.2:** Implement monitoring, research, and development program to test, refine, and apply improved planting techniques.
Habitat Restoration	**Planting expertise**	**Goal 1:** Plan and conduct research to increase knowledge about restoration methods and their effects in the full range of habitat types and degrees of disturbance.	**Objective 1.3:** Design restoration projects to incorporate research questions
Habitat Restoration	**Planting expertise**	**GOAL 2:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.	**Objective 2.1:** Inventory & assess current human resources knowledge & capability (who knows what & where are they located) & identify gaps and priority needs

Issue	Subissue	Goal	Objective
Habitat Restoration	**Planting expertise**	**GOAL 2:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.	**Objective 2.2:** Develop dedicated cadres of restoration specialists at a regional level (consider 7 subregions) to provide on-the-ground technical assistance for planning, implementation, and monitoring.
Habitat Restoration	**Planting expertise**	**GOAL 2:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.	**Objective 2.3:** Provide training to field-level resource agency personnel & partners on current restoration ecology, methods & monitoring techniques.
Habitat Restoration	**Planting expertise**	**GOAL 2:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish range wide restoration goals & priorities.	**Objective 2.4:** Develop university & vocational programs to train professional restoration specialists as well as on-the-ground practitioners.
Habitat Restoration	**Planting expertise**	**GOAL 2:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.	**Objective 2.5:** Promote private sector capability to provide contract services.
Habitat Restoration	**Planting expertise**	**GOAL 3:** Obtain and manage specialized equipment to meet restoration goals in strategic locations	**Objective 3.1:** Inventory current specialized equipment and compare with projected needs (consider 7 subregions)

Issue	Subissue	Goal	Objective
Habitat Restoration	**Planting expertise**	**GOAL 3:** Obtain and manage specialized equipment to meet restoration goals in strategic locations	**Objective 3.2:** Acquire equipment to address shortages &/or promote private sector inventory & availability.
Habitat Restoration	**Planting expertise**	**GOAL 3:** Obtain and manage specialized equipment to meet restoration goals in strategic locations	**Objective 3.3:** In coordination with the establishment of regional seed warehousing, co-locate equipment in selected strategic locations based on projected restoration project needs.
Habitat Restoration	**Planting expertise**	**GOAL 3:** Obtain and manage specialized equipment to meet restoration goals in strategic locations	**Objective 3.4:** Implement monitoring, research, and development program to test, refine, and apply improved & durable equipment.
Habitat Restoration	**Planting expertise**	**GOAL 4:** Refine and develop mechanism(s) to facilitate rangewide information sharing in a timely and user-friendly manner.	**Objective 4.1:** Produce tools which make best available knowledge accessible and responsive to needs throughout the range (e.g. website, newsletter, symposia, workshops, on-line training, blog, training sessions).
Habitat Restoration	**Planting expertise**	**GOAL 4:** Refine and develop mechanism(s) to facilitate rangewide information sharing in a timely and user-friendly manner.	**Objective 4.2:** Establish a central information clearinghouse for people seeking current knowledge about sage grouse habitat restoration from soup to nuts.
Habitat Restoration	**Planting expertise**	**GOAL 4:** Refine and develop mechanism(s) to facilitate rangewide information sharing in a timely and user-friendly manner.	**Objective 4.3:** Utilize regional restoration cadres for technical assistance & technology transfer.

Issue	Subissue	Goal	Objective
Science, Data, Info	**Standardized vegetation and other data layer base map and access system**	**Goal 1**: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	**Objective 1.1:** Develop a map-based locator on the SAGEMAP website for current and past research and monitoring projects in sagebrush and salt-desert shrub ecosystems.
Science, Data, Info	**Standardized vegetation and other data layer base map and access system**	**Goal 1**: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	**Objective 1.2:** Develop an information-dissemination framework to enable coordinated exchange of sound scientific principles between partners in conservation planning efforts and increase the effectiveness of conservation strategies.
Science, Data, Info	**Standardized vegetation and other data layer base map and access system**	**Goal 1**: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	**Objective 1.3:** Produce data layers appropriate for use in preparing ecoregional assessments. It also will identify primary land uses and changes, potential impacts to sagebrush habitats and associated wildlife, and species of concern that use sagebrush during some part of their life-cycle. Includes the development and maintenance of an updated map of vegetation.

Issue	Subissue	Goal	Objective
Science, Data, Info	**Standardized vegetation and other data layer base map and access system**	**Goal 1**: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	**Objective 1.4:** Develop a natural resource information portal for the sage grouse and sage ecosystems. Our goal is to provide easy access to useful information for land managers, researchers, educators, and the general public.
Science, Data, Info	**Standardized vegetation and other data layer base map and access system**	**Goal**: Develop a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems. Data layers will include vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	**Objective 1.5:** Share data and information on sagebrush habitat and sage-grouse disease. West Nile Virus (WNV) poses a significant threat to sage grouse populations and possibly other wildlife species in sagebrush ecosystems.
Science, Data, Info	**Definition of success for sage-grouse conservation.**	**Goal 1:** Develop a definition and metrics for success or failure of conservation actions for sage grouse including population estimates	**Objective 1.1:** Produce a synthesis of information on the methods, results, effectiveness, and short-term impacts of sage-grouse habitat improvement projects and other management activities within the sagebrush ecosystem.
Science, Data, Info	**Definition of success for sage-grouse conservation.**	**Goal 1:** Develop a definition and metrics for success or failure of conservation actions for sage grouse including population estimates	**Objective 1.2:** Develop range-wide standards for sustainable sage-grouse populations with sustainable harvest

Issue	Subissue	Goal	Objective
Science, Data, Info	**Definition of success for sage-grouse conservation.**	**Goal 1:** Develop a definition and metrics for success or failure of conservation actions for sage grouse including population estimates	**Objective 1.3:** Determine priorities for which areas to focus conservation actions to maintain the functioning of sagebrush ecosystems.
Science, Data, Info	**Definition of success for sage-grouse conservation.**	**Goal 1:** Develop a definition and metrics for success or failure of conservation actions for sage grouse including population estimates	**Objective 1.4:** Develop an annual region-wide score-card
Science, Data, Info	**Evaluating social and economic effects of human activities on sage grouse and habitat persistence.**	**Goal 1:** Understanding the role of social and economic factors that influence human actions and decisions on the potential persistence of sage grouse and its habitat	**Objective 1.1:** Ascertain cost/benefit analysis of status quo, additional conversions and restoration for rangeland uses as well as rural and urban rangelands towns and cities and counties
Science, Data, Info	**Evaluating social and economic effects of human activities on sage grouse and habitat persistence.**	**Goal 1:** Understanding the role of social and economic factors that influence human actions and decisions on the potential persistence of sage grouse and its habitat	**Objective 1.2**: Determine social benefits of status quo, additional conversions and restoration for rangeland uses as well as rural and urban rangelands towns and cities and counties
Science, Data, Info	**Ability to predict population outcomes/habitat as a result of vegetation change**	**Goal 1:** Development of a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions.	**Objective 1.1**: Develop predictive models for risk assessment and use areas for wildlife species dependent on sagebrush ecosystems
Science, Data, Info	**Ability to predict population outcomes/habitat as a result of vegetation change**	**Goal 1:** Development of a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions.	**Objective 1.2:** Model the cumulative effect of human activities on wildland systems in the western US including the zones of influence of infrastructure features on sage grouse behavior and habitat use.

Issue	Subissue	Goal	Objective
Science, Data, Info	**Ability to predict population outcomes/habitat as a result of vegetation change**	**Goal 1:** Development of a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions.	**Objective 1.3:** Determine multi-scale changes in land cover composition and configuration in sagebrush ecosystems
Science, Data, Info	**Ability to predict population outcomes/habitat as a result of vegetation change**	**Goal 1:** Development of a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions.	**Objective 1.4:** Validate all models to document their effectiveness in predicting outcomes.
Science, Data, Info	**Range-wide research and monitoring collaboration and coordination**	**Goal 1:** The development of an institutional framework to create (above) collaborative effort for funding, research, monitoring and management.	**Objective 1.1:** Provide a framework to encourage data consistency, quality and compatibility
Science, Data, Info	**Range-wide research and monitoring collaboration and coordination**	**Goal 1:** The development of an institutional framework to create (above) collaborative effort for funding, research, monitoring and management.	**Objective 1.2**: Develop a coordinated program of site-specific research and monitoring projects integrated within the context of the landscape
Science, Data, Info	**Range-wide research and monitoring collaboration and coordination**	**Goal 1:** The development of an institutional framework to create (above) collaborative effort for funding, research, monitoring and management.	**Objective 1.3:** Develop a coordinated effort for securing funds for research within the sagebrush ecosystem.
Science, Data, Info	**Range-wide research and monitoring collaboration and coordination**	**Goal 1:** The development of an institutional framework to create (above) collaborative effort for funding, research, monitoring and management.	**Objective 4:** Annual inventory of research and data information needs.

Issue	Subissue	Goal	Objective
Regulatory Mechanisms	**Inconsistent and inadequate application of existing regulations and policies.**	**Goal 1:** Uniformly apply existing regulations, regulatory mechanisms, and policies within and among agencies.	**Objective 1.1:** Complete a comprehensive range-wide analysis within and among agencies to identify inconsistencies and the reasons they occur among federal, provincial, tribal, state, and local governmental entities/agencies (by 31 December 2007).
Regulatory Mechanisms	**Inconsistent and inadequate application of existing regulations and policies.**	**Goal 1:** Uniformly apply existing regulations, regulatory mechanisms, and policies within and among agencies.	**Objective 1.2:** Agencies implement corrective action plans in response to analysis and resolve inconsistencies (by 1 October 2008).
Regulatory Mechanisms	**Adequacy of regulations**	**Goal 1:** Provide a regulatory framework that maintains and enhances Greater Sage-grouse habitat and populations.	**Objective 1.1:** Evaluate the adequacy of existing regulations (by 31 December 2007).
Regulatory Mechanisms	**Adequacy of regulations**	**Goal 1:** Provide a regulatory framework that maintains and enhances Greater Sage-grouse habitat and populations.	**Objective 1.2:** Propose recommendations for regulatory change (by 1 July 2008).
Regulatory Mechanisms	**Adequacy of regulations**	**Goal 1:** Provide a regulatory framework that maintains and enhances Greater Sage-grouse habitat and populations.	**Objective 1.3:** Agency implementation by (1 January 2010).
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Current approaches**	**Goal 1:** Long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.	**Objective 1.1** (short term): Facilitate coordinated, integrated conservation planning across the range.

Issue	Subissue	Goal	Objective
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Current approaches**	**Goal 2:** To insure cumulative effects are addressed (biological and socio-economic) across the range	**Objective 2.1:** To Identify mechanisms to assess and address cumulative effects (biological and socio-economic) across the range.
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Sharing scientific and management information and learning among local working groups and other sage-grouse stakeholders.**	**Goal 1:** Identify barriers and current level and efficacy of information sharing and learning that has occurred between LWGs, and others involved in sage-grouse conservation efforts.	Objective 1.1: Conduct a needs assessment of local working groups
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Sharing scientific and management information and learning among local working groups and other sage-grouse stakeholders.**	**Goal 1:** Identify barriers and current level and efficacy of information sharing and learning that has occurred between LWGs, and others involved in sage-grouse conservation efforts.	**Objective 1.2:** Enhance existing and/ or develop new mechanisms by which information from LWGs and others, could be stored, shared and utilized for shared learning among sage-grouse organizations.
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Inconsistency in policy and coordination across jurisdictional boundaries.**	**Goal 1:** Coordinated policies that enhance sage-grouse conservation efforts at multiple levels.	**Objective 1.1**: Complete an analysis of land management policies and land management plan direction to identify inconsistencies among federal, state, local, provincial, and tribal policies that create barriers that may inhibit sage-grouse conservation.
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Inconsistency in policy and coordination across jurisdictional boundaries.**	**Goal 1:** Coordinated policies that enhance sage-grouse conservation efforts at multiple levels.	**Objective 1.2**: Agencies and LWGs act to resolve inconsistencies that may inhibit sage-grouse conservation.

Issue	Subissue	Goal	Objective
INTEGRATION AND COORDINATION ACROSS RANGE AND JURISDICTIONS	**Inconsistency in policy and coordination across jurisdictional boundaries.**	**Goal 2:** Federal, state, and LWG practices will meet PECE guidelines.	**Objective 2.1:** Federal, state, and LWG demonstrate how elements of the Policy for Evaluation of Conservation Efforts (PECE) of the U.S. Fish and Wildlife Service are being implemented.

APPENDIX C3A

Facilitating Objectives For Forum Goals and Objectives

APPENDIX C3A

Facilitating Objectives/Facilitating Conservation Strategies

The objectives below are tiered to, and complement, the goals and objectives developed during the Range-wide Conservation Issues Forum. They were developed to address issues that, due to time constraints or other reasons, were unable to be addressed by the Forum.

Issue	Sub-issue	Goal	Facilitating Objective
Integration and Coordination Across Range and Jurisdictions	Inconsistency in policy and coordination across jurisdictional boundaries	1. Coordinated policies that enhance sage-grouse conservation efforts at multiple levels	1.3. Complete an analysis of land management policies and land management plan direction within agencies and organizations to identify coordination and policy inconsistencies that may inhibit sage-grouse conservation, and take remedial action. Although this could be construed as a variation Objective 1.1, the intent here is to look not only across agencies/other entities for inconsistencies, but also within them.
Integration and Coordination Across Range and Jurisdictions	Current approaches	1. Long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.	1.2 Develop formal guidelines for translocations of prairie grouse species that address translocation standards, prioritization of translocation projects, and source population identification.
Integration and Coordination Across Range and Jurisdictions	Current approaches	1. Long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.	1.3 Integrate sage-grouse conservation efforts with broader multi-species conservation programs wherever practicable.

Issue	Sub-issue	Goal	Facilitating Objective
Integration and Coordination Across Range and Jurisdictions	Current approaches	1. Long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.	1.4 Identify by, agency and other organizations, the long-term workforce (FTE) necessary to fully implement, or support implementation of, conservation plans.
Integration and Coordination Across Range and Jurisdictions	Current Approaches	2. To insure cumulative effects are addressed (biological and socio-economic) across the range	2.2 Establish the seven Sage-grouse Management Zones described in Chapter 1 as strategic management units for assessing and addressing cumulative effects across the range.
Habitat Conservation and Land Use	Non-Renewable Resources	1. Enhanced Greater Sage-grouse habitats and populations, with assurance of no "net loss" of habitat or grouse populations, at an appropriate spatial and temporal scale, while providing for non-renewable resource development and utilization.	1.4: In conjunction with developing "no net loss" and mitigation needs criteria, ensure that sage-grouse population or sub-population source habitats and key seasonal habitats critical to their persistence are identified through actions carried out under Objective 1.1 of Forum Report Habitat Conservation and Land Use Goal 1, "In concert with LWGs, identify, prioritize and map important habitats and areas for conservation and protection across the range."

APPENDIX C4

Appendix 4
of the
Final Report of the
Greater Sage-grouse Range-wide Issues Forum

Synthesized Rated Goals

A note about the rating: *Any single goal could receive 2-6 points per person per region (west/east). The combined ratings from the Integration Team ranged from 12-36 points for any single goal by region. The combined total for west and east could range from 24-72 from the 6-member Integration Team. It is important to note that the purpose of the rating was simply to identify those goals that most Forum participants felt an immediate need to address. The rating was not intended to create an absolute ranking of the goals.*

Synthesized Rated Goals

(from Forum Strategies)

Subissue	Goal	Total West	Total East	Total Combined
	[Note: High priority/critical goals were identified as those that were rated 30 or above for either the west or east regions, or had at least a 30 in one column and at least a 28 in the other for range-wide priorities/critical goals. The one exception to this was the Integration goal "Create a mechanism for sharing information among LWGs and all levels of those involved in sage-grouse conservation"....This was included as a high priority/critical goal in light of the interest expressed throughout the Forum for coordination with and among LWGs]			
	Common to All			
Monitoring	**Goal:** Design and implement monitoring that addresses the effects of human activities and natural events on sage grouse and sagebrush habitat, shows trends over time, and provides the foundation for adaptive management.			
Communication	**Goal:** Maintain and distribute guidelines, techniques, best management practices, and other critical data and information for sage-grouse and sagebrush conservation through an accessible central repository.			
	Habitat Conservation and Land Use			
Conservation and protection of habitats	**Goal:** Locate important and/or intact sage-grouse habitats ("save the best")	36	36	72
Invasive Plant Species	**Goal 1:** Maintain a range-wide list of invasive species posing the greatest risk to sage-grouse habitats.	24	18	42
	Goal 2: Identify known locations, and areas of future risk, for the top priority invasive plant species.	30	17	47
	Goal 3: Develop and implement guidelines for coordinated prevention and control of invasive plant species throughout sage-grouse habitat.	28	20	48
Livestock Grazing	**Goal 1:** Provide for livestock grazing with the assurance of 'no net loss' of sagebrush habitat or sage-grouse populations at an appropriate spatial and temporal scales.	23	19	42
	Goal 2: Develop and implement grazing systems and management practices that maintain the soil quality and ecological processes necessary for a properly functioning sagebrush community to address the long-term needs of sage grouse and other sagebrush associated species.	30	28	58
Agricultural Lands	**Goal 1:** Identify locations of prioritized agriculture lands that provide the greatest habitat value for sage-grouse.	22	22	44
	Goal 2: Develop and implement management practices for agriculture lands to protect or minimize harm to sage-grouse.	20	17	37
	Goal 3: Encourage the retention and restoration of sagebrush habitat.	25	25	50
Fences	**Goal 1:** Develop and implement guidelines for designing and siting new fences to avoid, reduce and, where possible, eliminate injuries to and mortality of greater sage-grouse.	23	22	45
	Goal 2: Modify existing fences to be consistent with new guidelines to avoid, reduce and, where possible, eliminate injuries to and mortality of greater sage-grouse.	16	14	30
Surface Hydrology	**Goal:** Develop and implement guidelines to manage surface water to increase the productivity of sagebrush ecosystems and enhance sage-grouse populations.	17	18	35
Infrastructure: Energy Corridors	**Goal 1:** Develop and utilize consistent criteria and management guidelines to locate/site, energy corridors, and operate and maintain new and existing facilities within energy corridors in a manner that minimizes impacts to sage-grouse and sagebrush habitat.	23	34	57

Subissue	**Goal**			
	Goal 2: Develop and implement best management practices (BMPs) and appropriate mitigation measures that can be implemented for siting and O&M activities associated with energy corridors.	24	32	56
Infrastructure: Roads & Railroads	**Goal 1:** Develop and utilize consistent criteria and management guidelines to locate/site new roads and railroads, and construct, maintain, or close roads and railroads to minimize impacts to sage-grouse and sagebrush habitat.	25	29	54
Infrastructure: Roads & Railroads	Goal 2: Develop and implement best management practices (BMPs) and appropriate mitigation measures that can be implemented for siting and O&M activities associated with roads and railroads.	22	25	47
Infrastructure: Tall Structures	**Goal 1:** Develop and utilize consistent siting and operation & maintenance (O&M) criteria for "tall structures" in sage-grouse habitat that will minimize negative impacts sage-grouse.	26	27	53
Infrastructure: Tall Structures	**Goal 2:** Develop and implement best management practices (BMPs) and appropriate mitigation measures that can be implemented for siting and O&M activities associated with tall structures.	26	27	53
Infrastructure: Urban/Exurban Development	**Goal 1:** Avoid or minimize incursion of urban and exurban development into greater sage-grouse habitats.	27	27	54
	Goal 2: Maintain private lands with ecologically sustainable sage-grouse habitat, and economically viable ranches in sage-grouse habitats.	23	23	46
	Goal 3: Develop and implement land management agency land tenure policies to acquire, maintain, or enhance greater sage-grouse habitats.	29	29	58
Dispersed Recreation	**Goal:** Manage dispersed recreational activities to avoid, reduce and, where possible, eliminate displacement of greater sage-grouse or negative impacts to sage-grouse habitat.	30	27	57
Non-Renewable Energy	**Goal 1:** Provide for non-renewable resource development and utilization with the assurance of 'no net loss' of sagebrush habitat or sage-grouse populations at an appropriate spatial and temporal scales.	25	36	61
Non-Renewable Energy	**Goal 2:** Develop and implement technologies and practices that off-set, reduce and/or minimize disturbance to sage-grouse and their habitat associated with non-renewable resource recovery activities.	24	33	57
Habitat Restoration				0
Conifer Encroachment	**Goal 1:** Identify the locations of areas of current extent and future threat of conifer encroachment within prioritized sage-grouse habitat.	29	16	45
Conifer Encroachment	**Goal 2:** Develop and implement coordinated control measures for encroaching conifer species within prioritized sage-grouse habitat.	26	14	40
Conifer Encroachment	**Goal 3:** Increase the efficiency/efficacy of conducting conifer removal activities in prioritized sage-grouse habitats.	24	13	37
Range-wide habitat restoration assessment & planning	**Goal 1:** Implement management practices and policies, including post-treatment management, that stabilizes or recovers sagebrush steppe habitat.	28	21	49
Range-wide habitat restoration assessment & planning	**Goal 2:** Identify and restore a realistic extent (acres and/or percentage of historic) of range to support the needs of sage-grouse.	22	22	44
Range-wide habitat restoration assessment & planning	**Goal 3:** Ensure that restoration techniques are ecologically sound and practicable.	23	21	44
Native seed availability	**Goal:** Develop a regional assemblage of species that are site adapted and available in quantities needed to implement plant COMMUNITY restoration priority projects/actions.	21	19	40
Planting expertise	**Goal 1:** Develop the human resources with knowledge and expertise to plan, implement, and monitor treatments to accomplish rangewide restoration goals & priorities.	20	20	40
Planting expertise	**Goal 2:** Obtain and manage specialized equipment in strategic locations to meet restoration goals.	18	13	31
Fire	**Goal 1:** Approach management of wildland fire and fuels management in greater sage-grouse habitat in an integrated and coordinated fashion with local, state, and federal agencies and private entities.	29	26	55
Fire	**Goal 2:** Containing and suppressing wildfires in important greater sage-grouse habitats receives top priority.	33	25	58
Fire	**Goal 3:** Manage habitat mosaics and fuels in greater sage-grouse habitat to improve habitat and reduce the possibility of damaging wildfires.	23	22	45

Subissue	Goal			
Science, Data and Information Management				
Standardized vegetation and other data layer base map and access system	**Goal 1**: Develop and implement a database of information for use in the research and management of issues concerning wildlife species and habitats in the sagebrush ecosystems: vegetation, land cover, land-use, infrastructure, habitat change, wildlife habitat, sage-grouse information, surface geology, and hydrology data.	32	31	63
Standardized vegetation and other data layer base map and access system	Goal 2: Institutionalize and expand long term existing natural resource information portals (e.g. SAGEMAP) for the sage-grouse and sagebrush ecosystems to provide easy and dependable access to useful information.	30	30	60
Standardized vegetation and other data layer base map and access system	Goal 3: Share data and information on emerging issues that pose a significant threat to sage grouse populations and sagebrush ecosystems (e.g. West Nile Virus).	23	23	46
Definition of success for sage-grouse conservation.	**Goal 1**: Establish and apply a definition and metrics for success or failure of conservation actions for sage grouse including population estimates	26	25	51
Definition of success for sage-grouse conservation.	Goal 2: Develop and implement range-wide standards for maintaining or increasing sage-grouse disribution and abundance while allowing for sustainable harvest.	21	20	41
Definition of success for sage-grouse conservation.	**Goal 3:** Identify locations of priority areas on which to focus conservation actions to maintain the function of sagebrush ecosystems.	31	32	63
Evaluating social and economic effects of human activities on sage grouse and habitat persistence.	**Goal:** Understand the role of social and economic factors that influence human actions and decisions on the potential persistence of sage grouse and its habitat.	17	17	34
Ability to predict population outcomes/habitat as a result of vegetation change	**Goal 1:** Create and utilize a tool kit for managers to model habitat to understand and predict sage grouse responses to management actions at different scales.	24	25	49
Ability to predict population outcomes/habitat as a result of vegetation change	**Goal 2:** Create and utilize a tool kit to assess and model the cumulative effect of sage-grouse and wildlands systems in the Western U.S. and Canada.	25	26	51
Range-wide research and monitoring collaboration and coordination	**Goal 1:** Create and implement an institutional framework that supports collaborative efforts for funding, research, monitoring and management.	28	28	56
Range-wide research and monitoring collaboration and coordination	**Goal 2**: Develop and implement a coordinated program of research and monitoring projects integrated within the context of the landscape.	30	29	59
Regulatory Mechanisms				
Inconsistent and inadequate application of existing regulations and policies.	**Goal:** Uniformly apply existing regulations, regulatory mechanisms, and policies within and among agencies.	27	26	53
Adequacy of regulations	**Goal:** Develop and implement a regulatory framework that maintains and enhances Greater Sage-grouse habitat and populations.	28	28	56
Integration and Coordination Across Range and Jurisdictions				
Current Approaches	**Goal:** Create long-term shared leadership and commitment resulting in implementation and evaluation of plans that integrate conservation issues throughout the range.	30	29	59
Sharing scientific and management information	**Goal 1:** Share scientific information, lessons learned and effective management practices effectively and efficiently among LWGs and at all levels of those involved in sage-grouse conservation.	26	27	53
Sharing scientific and management information	**Goal 2:** Create a mechanism for sharing information among LWGs and all levels of those involved in sage-grouse conservation to enable measurement of cumulative effects on sage-grouse habitats.	29	29	58
Inconsistency in policy and coordination across jurisdictional boundaries.	**Goal 1:** Resolve inconsistencies among federal, state, local, provincial, and tribal policies that may inhibit sage-grouse conservation.	27	26	53

Subissue	Goal			
Inconsistency in policy and coordination across jurisdictional boundaries.	**Goal 2:** Ensure that federal, state, and LWG practices meet PECE guidelines.	27	27	54